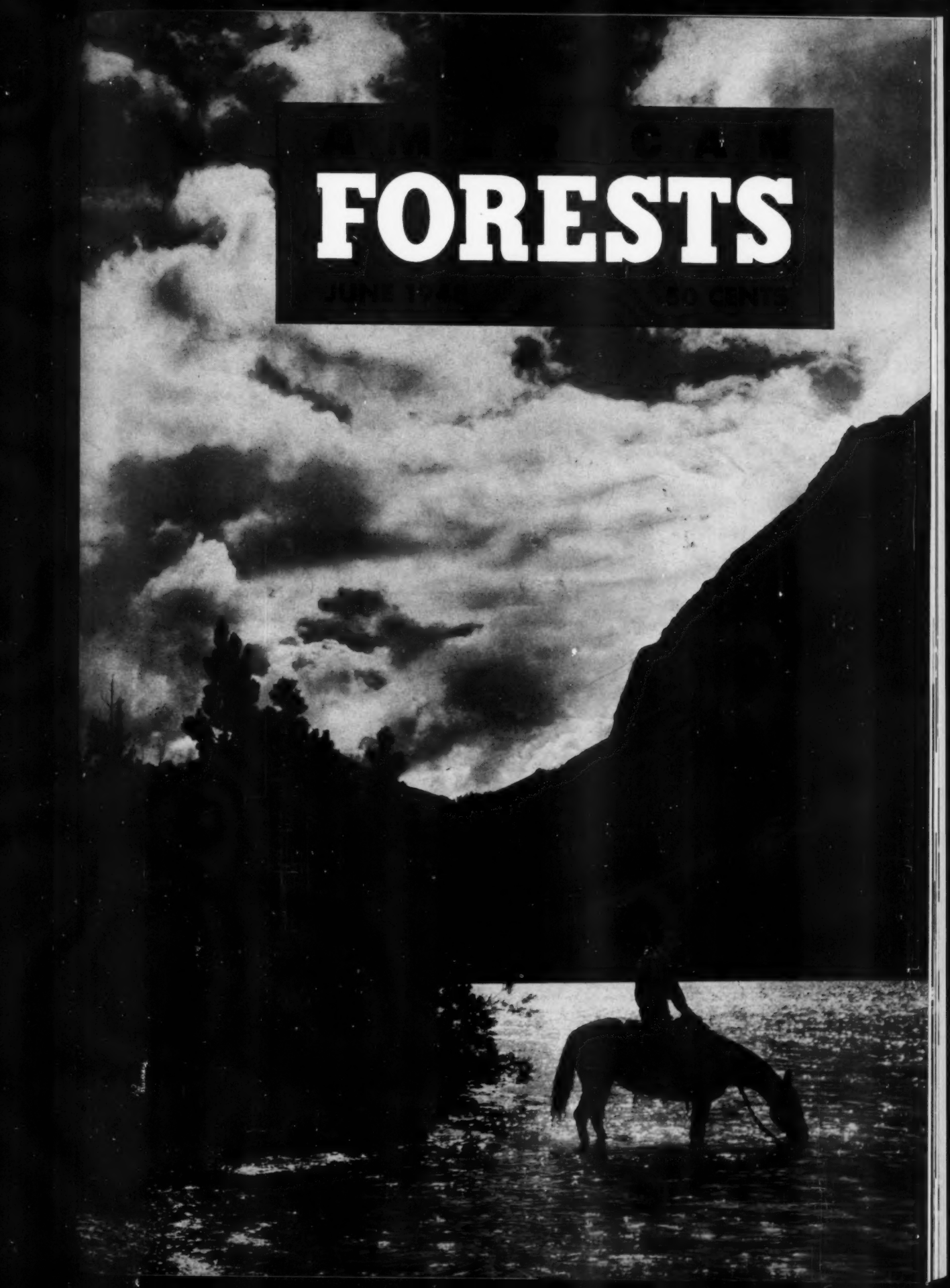
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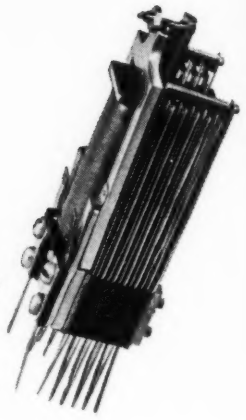

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AMERICAN FORESTS

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Photograph by Michael Roth

LETTERS TO THE EDITOR

GI Foresters

SIR: You will be interested in the fact that a total of 7,210 World War II veterans are studying forestry in educational institutions under the GI Bill. An additional twenty-nine are training on-the-job under the GI Bill for occupations in forestry.

A Veterans Administration survey lists occupational fields of some two million veterans studying in schools and colleges and 546 thousand training on-the-job on December 1, 1947. Veterans are eligible for education and training under the Servicemen's Readjustment Act (GI Bill) if they served in the armed forces between September 16, 1940 and July 25, 1947; had ninety days or more of service; and were released under conditions other than dishonorable.—*Veterans Administration*, Washington, D. C.

Too Many Poles

SIR: Regarding R. E. Mahaffay's interesting article on lodgepole pine ("Timber Cinderella") in your January issue, may I point out that never has the REA program "on paper" or otherwise called for the thirty million poles within the next five years that Mr. Mahaffay refers to.

Early in 1946 REA announced the need for three million poles annually through 1950 and two and one-half million per year from 1951 through 1957, provided that the continued legislative and financial support of Congress were forthcoming. In fiscal year 1947, REA borrowers received approximately three million poles; and during this present fiscal year (1948) they will probably receive something over two million.

This reduction is attributable both to the difficulty in obtaining other line components such as conductors, and to the fact that they have now a considerable number of poles in stock. No doubt when other line components are in more ample supply a closer approximation to the earlier requirement figures will take place.—*E. R. Smith*, pole specialist, Office of the Administrator, Rural Electrification Administration, Washington, D. C.

Education on Holiday Lake

SIR: It is my pleasure to inform you that Virginia will hold a training camp for some sixty-five boys who will be selected for their outstanding forestry work. The camp will be held on Holiday Lake in Appomattox County during the week beginning July 26, and will be free-of-charge to the boys.

Holiday Lake Camp will be administered by the Virginia Forest Service with the financial cooperation of the Southern Pulpwood Conservation Association and various Virginia wood - using industries. Subjects taught will be tree identification, forest protection, timber harvesting, area surveying, tree planting, cruising and game management.—*George V. Dean*, state forester, Charlottesville, Virginia.

From the Author of *The Tree Book*

SIR: I am sure that you are doing the greatest work for conservation that is being done at present. My best wishes to all the Association staff, and may more and more strong, young men consecrate their lives to carrying out your sweeping program. —*Julia Ellen Rogers*, Long Beach, California.

The Best Science Writings

SIR: Nine judges, representing newspapers, magazines, science and the general public, have been named to select two winners of the third annual $1,000 George Westinghouse Science Writings Awards. The American Association for the Advancement of Science conducts the competition for the awards, which consist of two $1,000 grants, one to the author of the year's best newspaper science writing, and a corresponding award to the writer whose work appears in a general-circulation magazine. The awards are from a grant by the Westinghouse Educational Foundation to commemorate the achievements of George Westinghouse, scientist, inventor and founder of the Westinghouse Electric Corporation.

This year's competition will terminate in July, and awards will be presented at the centennial annual meeting of the A.A.A.S. in September.

Newspapers are represented on the board of judges by H. L. Mencken of the Baltimore, Maryland, *Sun*, and Benjamin McKelway, editor of the Washington, D. C., *Evening Star*. Representing magazines are Edward L. Weeks, editor of *The Atlantic Monthly*, and Clifton Fadiman, book review editor of *The New Yorker*.

Science will be represented by Dr. Detlev Bronk, chairman of the National Research Council; Dr. Edward Weidlein, director of the Mellon Institute for Industrial Research at Pittsburgh; and Dr. Sidney Negus, professor of chemistry, Medical College of Virginia. The public members of the judging panel will be Dr. Kenneth Olson, dean of the School of Journalism, Northwestern University, and Dr. Rudolph Flesch, student of writing and author of the book *The Art of Plain Talk*. — *Dr. Howard A. Meyerhoff*, chairman of the Awards Managing Committee of the American Association for the Advancement of Science, Smith College, Northampton, Massachusetts.

Accent on Youth

SIR: It has come into my heart recently more and more to try to interest young boys and girls, like the scout organizations, in the beauty and wonders of forestry and to figure out ways in which they might be made to realize the great value and joy that would come into their lives if they knew more about the glorious trees.

Your story in the September, 1946, number about the Hoffman family ("A Family Discovers Forestry") has been a fascinating record and picture of what I would like to see duplicated many times in America. I believe there are many such places where a similar project is possible, but the big thing is to find a man with the vision and courage of H. Lee Hoffman who is willing to try it.

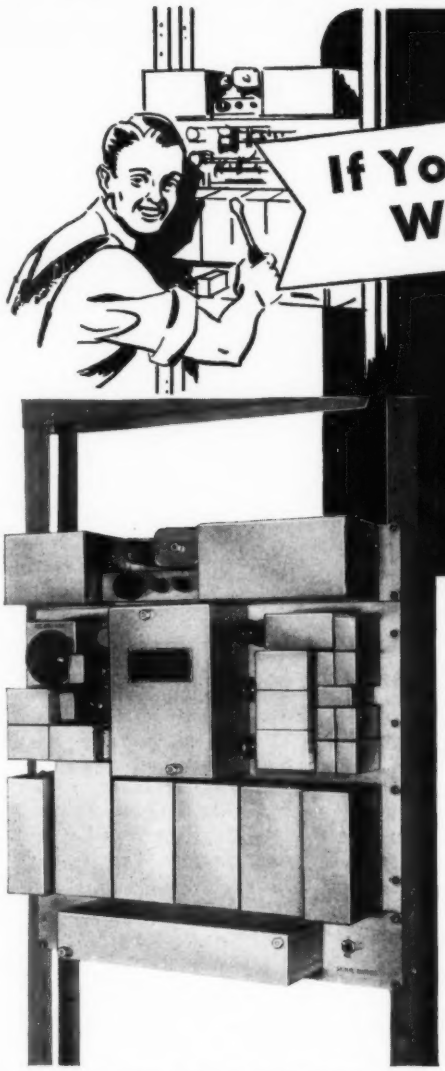
I wrote the Hoffmans that if I could go back fifty years so I could work again I would join them—just for the joy of doing something worthwhile.

Well, when you are seventy-five and *cannot* do, you burn up when others *will not*, because they do not see or understand the great opportunity.—*George M. Bassett*, Kenmore, New York.

On Control of Rivers and Streams

SIR: I am writing in regard to the waste of land—good and otherwise—by the rivers and streams of our nation.

I have tramped up and down the banks of the Flatrock and White rivers many times. I have observed also the caving in and washing out of many square rods of good soil—crop soil. But always I have noticed one very significant thing—there were no trees of any kind growing



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along these banks. Trees and vegetation are the natural protectors of the soil along the banks of almost all waterways. The roots of trees form a protective mat and the water cannot eat under these roots. It must glide over them. I have seen willow trees form a root mat adjacent to the water a foot or more deep. At this particular place the stream has always kept the same waterway because of these roots. It had no other choice.

It is common practice here in Indiana, and I suppose in other states it is the same way, to utilize productive soil right up to the river's edge. Consequently, there is nothing to keep the river from washing this earth away. The landowners or the farmers are "penny wise and pound foolish." They make money the first year or so by cutting out the trees up to water's edge, but in the following years they made none. That which was, is no more.

Too, there should be a federal law covering all states and territories of the U. S. A. compelling landowners to grade the banks of streams and rivers on their land and plant trees and grass thereon. Not one row of trees, but a thicket of trees. The larger the river, the more trees planted. And these plantings should extend back from the water's edge a greater distance than along the lesser streams.

As a member of The American Forestry Association I would like to have this proposed law put before all the members of the AFA for their thoughtful consideration. If the members conclude that this law is a good one for the conservation of soil, then I would like to see the AFA work to get this law passed by the government.—*Francis L. Schowe*, Indianapolis, Indiana.

Connecticut a Good Risk

SIR: The time has come for insurance companies to consider the possibility of making fire insurance available for woodlands where there is actual commercial value. All but the most hazardous forest areas should be insurable at normal premium rates. A comparison of the forest fire risk with some other fire risks now insurable at reasonably low premium rates might be quite surprising and enlightening.

In Connecticut, most woodlands can be managed to produce sawlogs and other wood products profitably as long time investments without owners taking unusual fire risks. Connecticut's forest fire record of the past fifteen years is very encouraging.

According to the Connecticut Park and Forest Commission's records on reported fires, only about one-third of one percent of all Connecticut woodland has burned annually during the past fifteen years. There has been an average of 1,300 fires a year. The average area burned per fire has been 4.7 acres. Considering that there are close to two million acres of woodland in the state the fire risk in most localities is at present a favorable one to the practice and encouragement of private woodland management. There is still a risk and we can always have an unusually bad fire year. However, the spectacular nature of forest fires too often creates the impression that the risk is out of proportion to the many other property risks taken by farmers and other owners of rural property. The long time record shows that this is not so in Connecticut.

Continued and ever increasing public cooperation and support of the state's forest fire protection program will make much of Connecticut's forested countryside an insurable risk which should be fully recognized by insurance companies. This recognition would, in the opinion of the writer, tend to encourage the more widespread practice of forestry and even increase the protective measures taken by private woodland owners.—*A. W. Hurford*, Cromwell, Connecticut.

What Do You Think?

SIR: This is a plea for more popular articles—articles that will appeal to the whole family, to friends and neighbors who drop in. Both my husband and I are active conservationists and we get a lot out of the magazine. But our experience has been that before it will interest other people we must have more popular articles, more pictures. My friends like to read about places and people and animals, and when anything of this nature appears, they read and enjoy it. The same with the youngsters. For example, the other evening our eleven-year-old was on the floor thumbing through the May issue of AMERICAN FORESTS and showing no interest until he came to pictures of elk ("Revealing Elk Secrets")—then he became quite excited and asked a lot of questions. The story of Aspen, Colorado, ("The Rebirth of Aspen," January issue) you published some time back, the maple sugar story ("Maple Syrup—Luxury Product," March issue) and the splendid story about Grandfather Mountain in the May issue are the type of articles my neighbors like — and read. — *Mrs. George Downing*, Richmond, Virginia.

Vacation in the Wilderness

Vacation this summer in the wilderness . . . in the wild, rugged, roadless back country of our western national forests and parks. Get away from crowded highways and resorts to ride tree-lined trails, to fish in fast white water, or to explore afoot these last strongholds of nature. The Trail Riders of the Wilderness, organized in 1933 by The American Forestry Association, offers you this opportunity. Nine expeditions are being organized this year. One is already filled, but there is limited space for additional riders on all the others. Act promptly, now, to ride in 1948.

No. 1—Flathead-Sun River Wilderness, Montana
July 5-16. Cost $172

No. 2—Flat Tops Wilderness, Colorado
July 12-19. Cost $129

No. 3—Flathead-Sun River Wilderness, Montana
July 16-27. Cost $172

No. 4—Flat Tops Wilderness, Colorado
July 20-27. Cost $129

No. 5—Sawtooth Wilderness, Idaho
July 27-August 6. Cost $168

No. 6—Maroon Bells-Snowmass Wilderness, Colorado
August 2-14. Cost $174

No. 7—Sawtooth Wilderness, Idaho
August 10-20. Cost $168

No. 8—Cascade Crest Wilderness, Washington
August 19-31. Cost $188 (Quota filled; no reservations available)

No. 9—Inyo-Kings Canyon Wilderness, California
August 28-September 8. Cost $187

For reservations write or wire

THE AMERICAN FORESTRY ASSOCIATION

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Glacial Pond in Michigan

Photo by Rutherford Platt

Editorial

Straws in the Wind

When more than 200 persons voluntarily journey to Omaha, Nebraska, to attend a two-day conference on land-use problems, one has reason to wonder what is in the wind. More to the point, what stirred up the wind in the first place?

The self-appointed Omaha planners (see page 255) were more than tillers of the soil seeking better methods of raising crops or more ample subsidies. They included bankers, manufacturers, publishers, businessmen—a cross section of higher-bracket taxpayers with a vital interest in the management of American soil and other resources. They were seeking a way to obtain a greater return on their conservation tax dollar. As Milton S. Eisenhower, president of Kansas State College, pointed out in the March issue of *Country Gentleman*, the taxpayer receives about ten cents worth of conservation out of every dollar spent for it.

Secret to this low return on the tax dollar is presumably overlapping authority and lack of coordination of conservation activities by the many agencies, both federal and state, involved. Another factor is misguided programs entered into for political or social reasons without proper regard for their conservation merits.

At the federal level there appears to be an awareness of the problem. The Hoover Commission, or the Commission on the Organization of the Executive Branch of the Government as it is officially known, is undertaking studies of the whole executive department with a view to recommending more efficient management. Special committees of the commission are currently engaged in studies of agriculture and natural resources.

From the legislative point of view there is also recognition that changes must be made. Witness the Hope, Hill, Jensen, Cooley and Aiken bills, all looking toward consolidation of agricultural functions and elimination of overlapping authorities and programs. Witness Congressional committees on agriculture and their studies toward a long-range farm program.

If a lasting solution to our conservation problems is finally found, many pet projects and presently well-entrenched agencies may suffer in the process. But, to serve conservation best, the solution may have to be ruthless so far as existing units and personalities are concerned. The measuring stick should be one based on effective conservation, wise use and high return of products and services, both immediate and long-term, for the taxpayer and his children.

The proper approach seems to be to forget existing agencies as such and place ourselves in the position of having only problems and suggested solutions. Then plan and execute a program of sound resource conservation. Idealistic? Perhaps. But the more idealistic the approach, the more scientific the solution can be. Naturally there will be weeping and wailing and gnashing of teeth among agencies whose titles or prerogatives are eliminated or changed, but the stake of a future American should not be influenced thereby.

Forestry Is Good Watershed Management

Seattle is a dynamic and growing city, fortunate in its situation between the high Cascades and Puget Sound and in the close proximity of sources of an ample water supply. Yet, like other American cities consuming water of surface origin, Seattle has always before it the problem of how to administer for maximum public safety the catchment area from which this supply is obtained (see "A City Guards Its Water" on page 248).

This problem is seldom, if ever, easily solved. And much of the thinking concerning it is controversial, ranging from one extreme of "closed" watersheds, to which — theoretically, at least — no one is admitted, to the other of tolerating regulated use or even use without controls. The assumption is that water originating in a "closed" area is pure, while that coming from used watersheds can be made safe for human consumption only by artificial purification. Such assumptions are at least partially correct — in the second particular — but real danger lies in false security where closure is not absolute.

Seattle took over its present water source nearly fifty years ago, and since that time has pioneered in many phases of watershed protection. Its efforts to achieve control over the entire watershed—143 square miles—followed two lines: acquisition of all land that could be bought, and promotion of state legislation to give the city the right to prescribe and limit activities upon that which could not.

A unique feature of the development of this watershed has been the existence, since before the city took over the area, of large-scale timber harvesting operations. Two such operations are in progress today, cutting privately owned stumpage. Also unique is the fact that when virgin timber stands have been removed from land already deeded to the city, Seattle will be proprietor of a very large, sustained-yield forestry enterprise. Systematic planting and the leaving of seed trees, plus vigorous efforts to keep fire away from logged-off areas, have been going on for two decades.

Inevitably, through the years, the watershed has been the subject of political discussion. The issue most often raised has been that of "logging" and its effect upon purity and volume of water. Public fears had been aroused to such a point by 1943 that city authorities employed three experts to examine the area and determine whether logging, as carried on, had any harmful or other appreciable effects upon runoff or quality of the water consumed by Seattle. Their report pointed to various shortcomings in the administration and technical supervision of the watershed. But none of these failures was the result of logging or maintaining logging camps. On the contrary, the protective measures practiced in these operations were highly praised and held up as examples for emulation by other occupants of the area.

More interesting, perhaps, a program of sustained-yield logging was recommended for the future as conducive of highest quantity and quality of water, and fullest economic use of the city's property. In other words, forestry was saluted as the best possible use of the land. Needless to say Seattle is launched upon a sustained-yield program.

George C. Chew

A new forest of young Douglasfirs is now growing along Cedar River

A CITY GUARDS ITS WATER

Seattle Proves Forestry to Be Good — and Profitable — Watershed Management

By ALLEN E. THOMPSON

IN Yakima Pass, high in the Cascade Mountains of central Washington, is a small lake, which much of the day is shaded by the firs and hemlocks that clothe these rocky slopes. Frozen and covered with snow a good part of the year, this lake is the source of two streams. One, flowing to the east, joins the Yakima River and, following the Yakima Valley to the Columbia, furnishes life-giving water to the fertile soil along its course. It has made possible the development of thousands of prosperous and productive orchards and farms in what was once little more than a desert.

The other stream, flowing westward through mountains whose slopes have long been covered with a dense mantle of evergreen forests because they are watered by abundant rains and heavy snows, is joined in its rapid descent by springs and streams in quick succession from either side. Thus Cedar River is formed. Hurrying down out of the mountains, it finally discharges into Lake Washington at the threshold of Seattle, only thirty-seven miles from its source.

Cedar River is not a large and mighty stream when compared with other rivers in the country, or even in the Northwest. But despite its smallness it has played an important role in the economy of Seattle and the surrounding Puget Sound country. Even before the coming of white men, the Cedar River Valley, perhaps because of the ease with which it could be traveled, was a favorite route of Indians journeying through the Cascades. There is evidence that for many generations Indians camped on the western shore of Cedar Lake.

Pencil writings and knife carvings on cedar (western redcedar) trees still mark the location of a military camp site near the headwaters of Cedar River, where a battalion of Washington Territory Volunteers was stationed during the Indian wars of 1856. History records the troops were there to prevent the eastern

Washington natives from coming through Yakima Pass and reenforcing the Puget Sound Indians who were threatening the infant settlement of Seattle.

Seattle survived and grew, and in 1890 the people of that community, who actually numbered slightly less than 43,000, acquired the then existing water system consisting of distribution pipe lines and apparatus for pumping water out of lovely Lake Washington, just over the ridge east of the main settlement on Puget Sound. Even at that early date it was evident that the large fresh water lake to the east would attract year-round residents and thus become a suburban area. So the city fathers decided to go farther afield for a permanent water supply.

Steps were taken almost immediately to develop a gravity system from Cedar River. The first water from this source was delivered to Seattle in 1901, and since that time the river has supplied all of the water for the city—and much of the surrounding suburbs as well. A population of over a half million is now being served. Qualified observers have estimated that double the present consumption could be supported.

Having established its water supply, Seattle turned its thoughts toward power development at Cedar Falls. Here the storage possibilities of Cedar Lake, coupled with a 600-foot drop in the river immediately below the lake, created an ideal site for a hydro-electric power plant. The Cedar Falls plant was placed in operation in 1904. Although overshadowed by the recent extensive Skagit River development by the city, it is still in daily use.

Cedar River, in being the chief tributary to Lake Washington, is therefore the principal source of water needed in the operation of the Lake Washington ship canal, which makes the fresh water harbors of lakes Union and Washington available to ocean-going vessels.

Through local custom and usage, as well as in the official "Ordinances" of the city of Seattle, the term "Cedar River Watershed" has come to denote all of the drainage area of the Cedar River above the intake of the Seattle water supply. Lying in eastern King County, the watershed has an area of 143 square miles, or 91,500 acres. From the intake at Landsburg, at an elevation of 520 feet, and twenty-two miles from central Seattle, it extends eastward for an airline distance of twenty-five miles to the crest of the Cascade Mountains, with elevations up to 5,500 feet. Its maximum breadth is eight miles.

The eastern portion is mountainous, with swift-flowing streams. About midway of the valley lies Cedar Lake, a natural reservoir four-and-a-half miles long and a half mile wide. Its normal elevation of 1530 feet has been raised to 1561 feet by dams for power production storage. On leaving Cedar Lake the river makes a rapid descent of 600 feet in the next two miles, forming the Cedar Falls power site developed by the city. Below Cedar Falls the valley broadens, slopes are moderate with some bench land. The mountains are left behind

Methods of harvesting on the watershed have been almost entirely strip or block clear-cutting, as shown on far side of Cedar Lake. An area selectively logged is in foreground

George C. Chew

— and the river flows on to Lake Washington.

Comparable with the values of the water resources of the Cedar River Valley are the values and importance of the forests growing upon the area. Because the timber was accessible, logging started at an early date and has been continuous ever since. That portion of the valley below Seattle's water intake has now, following logging, developed into an agricultural region, with woodlots of various sizes interspersed with the farms. The portion above the intake, being under the city's control, is and will always remain forest. Here both the harvesting of mature timber and the growing of a new forest are now in process under the supervision of the city.

At lower levels, the forests of the watershed are predominantly of the Douglasfir type. As elevations increase western hemlock becomes more plentiful, and at elevations of about 3,000 feet hemlock, noble fir and Pacific silver fir in mixture constitute the predominating type. At higher elevations the latter two species predominate. In general, the forests are even-aged.

Soon after establishing the Cedar River water supply, Seattle began acquiring private lands within the watershed. The city now owns around 63,000 acres and is in a position to control all activities in the watershed in the best interests of the water supply. About 25,000 acres of the watershed lies within the boundary of the Snoqualmie National Forest. This federal timber is interspersed with the city and private ownerships in a checkerboard pattern. The remaining area in private ownership will be acquired by the city as timber on it is cut.

The city has followed the policy of purchasing the land only, the timber and the right to log it being reserved by the private owner. However, in the vicinity of Cedar Lake, around 8,000 acres of timber were acquired, most of which has since been sold and logged, with a revenue accruing to the city of about one million dollars. This amount just about covers the entire cost to the city of acquiring the watershed. The remaining uncut area of 40,000 acres of virgin timber is owned by Uncle Sam, the city, and by three private timber companies.

Logging operations were already in progress on the Cedar River watershed when Seattle started to develop its new water supply, and they have been continuously in operation ever since. The period of heaviest cutting activity was between 1910 and 1920. There have been as many as four operators removing timber from the watershed at once, with annual cuts as high as a hundred million board feet. Logging methods, throughout all these years, have followed the conventional pattern generally in use throughout the Douglasfir region. Starting with the ground yarding systems with the pole roads and skid roads of the early days, they evolved through the high lead systems with immense slack line and skidder machines of the railroad logging period, to motor truck, tractor, bulldozer, and lightweight gas and diesel powered machines of the present motortruck logging era.

Cutting practices have likewise followed those generally applied throughout the Douglasfir region. This has been clear-cutting. With each succeeding year the cutting front on the timber was extended farther and farther back, first starting in the more accessible lowlands and working towards the mountains, and then like the fingers of a giant outspread hand, spreading into the mountain valleys, and finally broadening these fingers by rising higher and higher on the mountain slopes. After half a century there is still virgin timber left.

The result of this cutting has been to build up an extensive and contiguous area of cutover forest land. Soon after the logging, and the subsequent burning of slashings, the process of natural reforestation came into operation. With the passing of the years, there has been established a continuous second growth forest, many thousands of acres in extent, with present ages varying from tiny seedlings just starting to stands of forty to fifty years. Failure of this natural process to re-establish the forest has only occurred on small areas.

Such failures can be attributed chiefly to two causes. In the days before the city established effective forest fire protection on the watershed, repeated fires ran over portions of the logged lands, which were far removed from sources of seed supply. The planting of trees grown in the forest tree nursery maintained on the watershed by the city has corrected this. However, on some of the mountainous areas, particularly those with south and southwest exposures, adverse site conditions tend to prevent the natural establishment of seedlings, even though a seed supply source is available. Here again tree planting is needed, and on such areas which may be cut in the future some modification of current cutting practice is indicated.

In 1943 the policy of the city with respect to logging on the Cedar River watershed came up for study and review. This was motivated by plans for the resumption of private logging operations in the upper Cedar River area, and also because logging agreements between the city and two of the private timber owners were approaching termination. After much negotiation there resulted the Cedar

Cedar Point lookout, a unit in the effective fire control system on the watershed, is thirty miles from Seattle

George C. Chew

River logging agreement, which is a contract between the four private timber owners represented on the watershed and the city of Seattle, providing for the orderly harvesting of the 40,000 acres of virgin timber remaining on the watershed.

Meanwhile, there had developed in Seattle a divergence of opinion as to the advisability of continuing logging operations within the watershed because of possible damage to the water supply. So before this agreement was consummated the city had an authoritative study made to determine what effect, if any, continued logging would have on the quality, quantity, and purity of the Cedar River water supply.

The Cedar River Watershed Commission was made up of two sanitary engineers and one forester, all nationally known men and experts in their fields (Abel Wolman, professor of sanitary engineering, Johns Hopkins University, Carl Green, John Cunningham & Associates, Portland, Oregon, and Bror Grondal, professor of forestry, University of Washington). It soon became apparent to the commission that the answer to much of the problem was to be found in the history of the watershed itself, since it had been supplying water for forty-three years while timber cutting had been carried on for almost half a century. During this time the city had been accumulating information and data—though not complete in all respects — on precipitation, stream flow, water quality and purity, logging history, reforestation, fire protection and watershed use.

The commission concluded that, "Logging practices on the watershed in the past have had no important or discernible effect upon precipitation, run-off and quality of water. (They) . . . have not produced appreciable erosion of the watershed, (and) . . . The controls required on the water supply for the protection of the consumer against potential or actual sanitary hazards will be required whether logging is or is not practiced in the future." The commission further stated that "Controlled watershed use rather than the maintenance of full virgin forest canopy has advantageous values for water supply development. Such controlled watershed use has collateral timber production values, which are in no way incompatible with the watershed use for water supply development. A program of sustained-yield logging is recommended for future use on the watershed."

(*Turn to page* 287)

Like cutting practices, logging methods have followed those in use throughout the region. Here a huge arch starts a log on its way

Logging operators pay for use of city-owned roads—the revenue thus received goes for fire protection and tree planting

Are airplanes casting a shadow over the last primitive areas in America? Well, here's at least one clue. The little hamlet of Ely, gateway to the Quetico-Superior wilderness, has become the largest inland seaplane base in America

Wings Over the Wilderness

By SIG OLSON

IT was our third day out. We had come down the international boundary chain of lakes through Basswood, Birch and Knife and were heading to the south to find a spot we had been dreaming about for months. It was a small lake we were going to, but it was full of trout. It was quiet and secluded and off the beaten routes of travel to the north.

Very few knew of this little lake, only some trappers and cruisers like ourselves. It wasn't important enough to attract great numbers of people. No resort would ever want to start there. No one had ever given it a name. It was as virgin and unsung as any bit of wilderness in the whole Quetico-Superior country, along the Minnesota-Ontario border.

We portaged up a tiny creek, its waters swollen with the melting snows. As we approached, there was a swirl of black bodies in the first pool. The suckers were spawning, forcing themselves over a rocky obstruction just above. Up the trail we heard a crash, a black bear at another pool scooping out the glistening fish with its paws. It reared when it saw us, grabbed a squirming sucker and made off through the underbrush. We stopped, hoping it would return.

The partridge were drumming, the hollow resonant beat sounding from all the ridges around. Flickers were back chattering excitedly from dead stubs, and just beyond toward our lake, we heard the loons. A kingfisher flashed gaily along the shore, its metallic rattle going full blast.

The portage began to climb soon after leaving the landing. It climbed over the rocks into a pale green mist of budding aspen and birch. Near the creek, pollen dusted catkins of alder hung pendant from the still leafless twigs. The air was rich with the smell of thawing humus, bursting Balm of Gilead, full of the sense of spring and the coming adventure of the days ahead.

We dropped the canoe at the shore

Honest sweat and long hours of toil should be the admission price to wilderness lakes, many sportsmen feel. That's why they do not take kindly to flying fishermen who come the easy way

and looked out across the water. It was calm and our loons coasted just beyond the first rocky point. Trout were rising, ripples moving shoreward from the reefs. There would be sport with flies and spinners if we could make our camp before dark. Hurriedly we loaded the canoe, pushed down through the reflections to a timbered rocky point halfway down the lake. There we pitched our camp, faced the tent so it would command the entire wilderness view up and down the waterway. After supper we walked down to the shore, stood there and listened.

This was the wilderness of the Superior. Hermit thrushes were carolling and everywhere was the sound of rushing water. A flock of mallards just up from the South, quacked steadily in a grassy bay, then in a rush of wings took to the air and flew over us toward the lake we had left.

I took my rod and made a cast, let the streamer rest for a moment, retrieved it slowly. A trout rolled, took the fly and the water swirled. Back and forth it ran, the line slicing the calm water. Round and round in narrowing circles among the jagged rocks at our feet, then a scoop of the net and the fish was ours.

"A beauty," said Bill delightedly. "Real wilderness food."

He lifted the trout out of the net. It was firm and cold and richly colored, silver and golden brown with streaks of vermillion along the edges of the fins.

Another rose near by and the performance was repeated. Two trout almost of a size, not large, but full of fight.

"Enough for breakfast," said Bill.

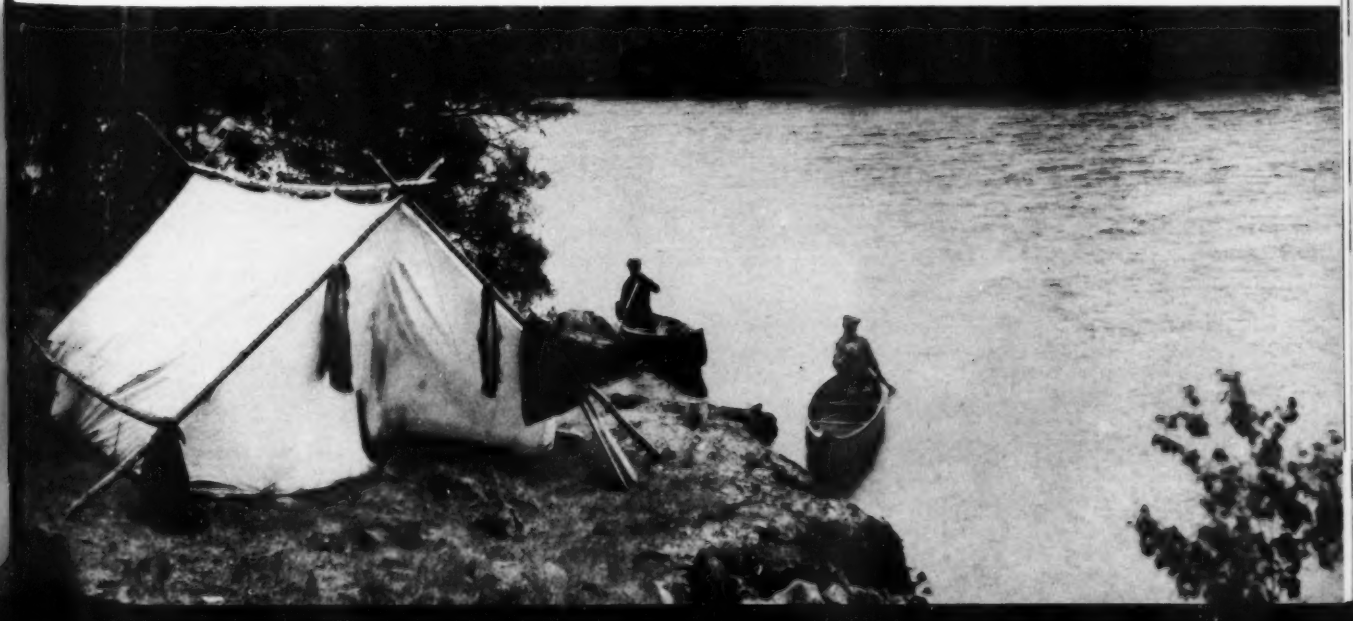
I put the rod away and we stood there gloating over our fortune, enjoying to the full the knowledge of having at last reached our goal and finding it as we'd hoped and dreamed it would be. At that moment the cities seemed far away. It was hard to remember the traffic and the turmoil of the scene we had left scarcely a week before.

Then we were conscious of a sound we both knew and dreaded, a dull drone over the ridges to the south. It grew louder and louder, and through the dusk we saw the red and green riding lights of a plane, twin stars floating steadily over the horizon. The soft drone grew into a roar and the lights began to drop. We prayed it would go on, head for one of the larger lakes beyond, but to our dismay it began to circle, widely at first, then in closer and closer spirals, its roar and vibration engulfing the entire valley beneath. Perhaps the pilot was looking for a landmark. Surely no one would charter a flight into this tiny isolated body of water with so many greater lakes to choose from. No one knew of the trout, just a few of the guides and a trapper or two and they all felt exactly as we. This was one spot we'd sworn to keep to ourselves, one last sanctuary to remind us of the wilderness we used to know.

Now the plane was close and we could hear the wind whistling through the struts as it went by. One more circle and it swooped toward the far end. The pontoons crashed into the water, and the ship taxied toward an island half a mile away. There was great commotion as the party stepped ashore. A canoe was unstrapped and packsacks handed out. Then the plane swung away from shore into the open.

After paddling and portaging for a week, the owners of this cozy little camp thought they were entitled to the fishing in Cypress Lake. Then a plane roared in — and they moved on

Duluth Herald and News



The pilot gunned his motor, roared past us not two hundred feet away. We stood there and watched the lights disappear over the horizon. The birds were still, the loons gone, our senses numb from the violence of the takeoff.

"The last spot I'd thought they'd come," said Bill.

We walked back to the tent, built up the fire and laid out our sleeping bags. Neither of us said a word. In the morning we'd pack up and move on. We realized that we had no more right to this little lake than anyone else. It belonged to the other party as much as to us, but still we couldn't help but feel they hadn't earned the right to its enjoyment, hadn't paid the price to get in. Half an hour back they had left the pavements. Their outfits were clean and immaculate. They hadn't faced the sun and the wind, didn't know the feel of packs or straining in the teeth of a gale. They had missed the camps on the way in, didn't know what it meant to at last escape motor boats and planes, outboard motors and crowding. They couldn't possibly know the real meaning of wilderness as we had known it.

Certainly they would enjoy the fishing and the feeling they were removed from civilization, but coming in the way they did and knowing they would go out the same way, had robbed them of their sense of achievement. Real understanding of wilderness was reserved for those who worked for it. It was impossible to drop into a remote area by plane and get the full meaning of exclusion. Something happened to a man who fought to reach that goal. He became part of the country he traveled, part of rocks and trees and water, part of bird songs, the wind, and vistas down the lakes. The only way in which this realization could come was through living closely and intimately with a country and that meant traveling by primitive means. No man could become part of any wilderness by being dropped into it any more than a backwoodsman could suddenly become part of a great city by being parachuted down into its busiest traffic.

We could see the fire from the other camp flickering fitfully against the far shore. This was their first night, their first taste of camp cooking. Their last meal had been in a dining room, on a clean white cloth instead of on the rocks.

"They'll fly out with gunny sacks full of trout," said Bill. "This little lake will go like all the rest."

"Excellent trout fishing within twenty minutes of our base. Get your limit and be back in time for dinner," I quoted from a resort booklet I had recently seen.

"It's still beautiful," said Bill, placing another stick on the coals, "but from now on it's just another fishing spot."

We rolled in after a time and lay there listening to the loons in the lakes beyond. A beaver slapped his tail loudly back in the bay and migrating birds moved restlessly in the trees around us. In the morning we would move, but where?

I lay there wide awake wondering what could be done to save the wilderness country of the Quetico-Superior. Perhaps this was the end of the long effort to preserve this lakeland for the voyageurs of the future. At first it was the roadbuilders who twenty-five years ago seemed determined to build a modern highway into every lake of the area and make it the greatest resort country on the continent. To fight that threat, a group of conservationists organized the Superior National Forest Recreation Association. While this organization did not function long, it marshalled public opinion and showed the folly of sacrificing the canoe routes to commercial exploitation.

In 1923, the Izaak Walton League swung into the fight, made the saving of the wilderness canoe country one of its major issues.

In 1925 E. W. Backus, an industrialist, proposed to the International Joint Commission that he be allowed to dam up the border waters for power. The public who until now had thought the border country safe, again had a battle on its hands. "Save the Quetico-Superior Wilderness" became the battle cry and the newly formed Quetico-Superior Council threw in the weight and enthusiasm of conservationists on both sides of the border. For the first time a coordinated plan of management was

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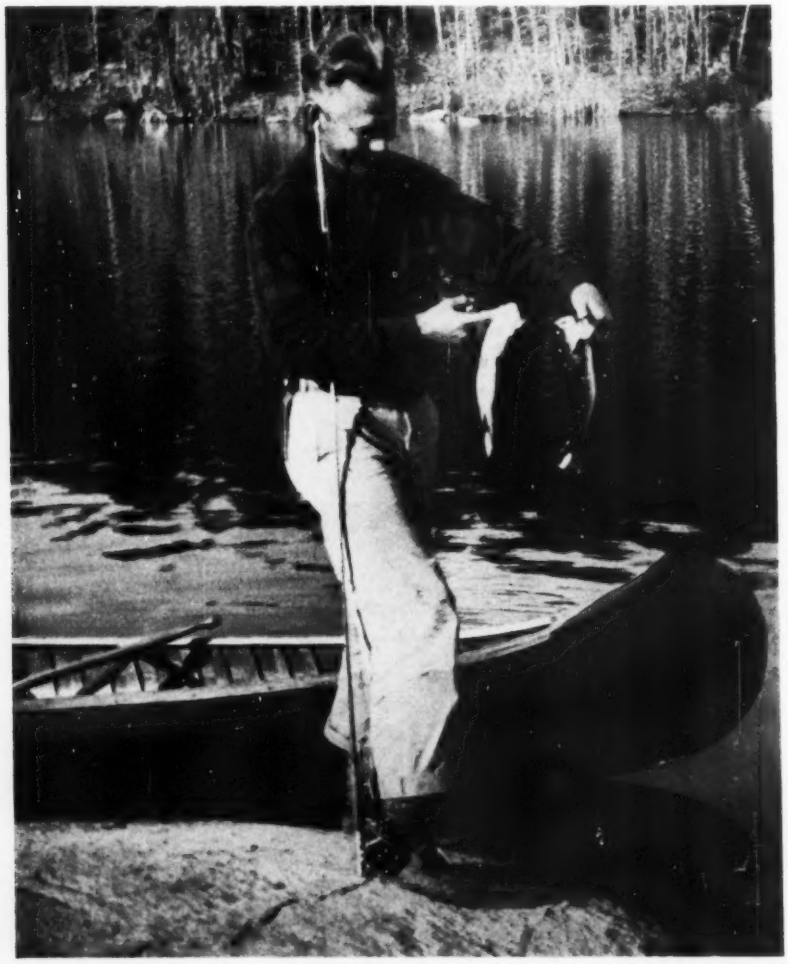
The author demonstrates the reward of wilderness fishing



SECOND OMAHA BEACHHEAD

Conservationists rendezvous at Omaha, Nebraska, for attack on nation's conservation problems

By A. G. HALL

MORE than 200 persons from thirty-three states and the District of Columbia gathered at Omaha, Nebraska, on May 7 and 8, in a National Conference on Land Use Policy. Purpose of the meeting was to explore the problems affecting the conservation and use of American soil with a view toward developing broad policies of land use which would assure continuing soil productivity and a stable agricultural economy.

While members of the conference were agreed that the nation must get behind a policy of preserving soil, water and forests, they were unable to agree upon the method of approach or upon the legislative action necessary to federal leadership of any comprehensive program. Early press reports indicated that the conference might endorse the Hope bill, recently introduced by Representative Hope of Kansas, chairman of the Committee on Agriculture for the House of Representatives. In fact, support for the bill was voiced by E. H. Taylor, associate editor of *Country Gentleman*. The bill would provide a national land-use policy and unification of government agencies concerned with agricultural problems.

The wide range of interests represented in the conference, however, were unable to agree with the methods of the Hope bill, although for the most part they support the principles involved. Groups represented included agriculture, food industries, farm machinery manufacturers, fertilizer and chemical industries, public utilities, railroads, forest industries, publishers, educators, banking and financial groups, recreation and wildlife, general business, conservationists, health and nutrition. E. J. Condon of Chicago, Sears Roebuck executive, served as chairman of the conference.

Instead of taking any direct action, the conference appointed a committee to review the material presented at Omaha and to develop a report for action at another meeting to be called early this fall. Named to this committee were Walter E. Christenson, editor of the Omaha *World-Herald*; Lloyd Partain of Philadelphia, Curtis Publishing Company; and Walter Gumbel of Fairmont, West Virginia, the Monongahela Power Company.

Reports of the six discussion groups were given to the committee for further study after their failure to be passed by the conference as official recommendations. The discussion group on "relationship of food production and processing industries to proper land use and conservation" recommended surveys of land and water resources, including mapping of land cover and land-use possibilities, as basic to the determination of any land-use policy. It called for research in nutrition, production efficiency and nutritive quality of soil products and elimination of wastes. Warren C. Huff of Columbus, Ohio, Coke Oven Amonia Research, was chairman of this group.

"The responsibility of manufacturing industries to land use and conservation" was discussed by a group led by F. A. Wirt of Racine, Wisconsin, the I. J. Case Company. This group urged educational work among manufacturers and their organizations and support of recognized groups in the conservation field.

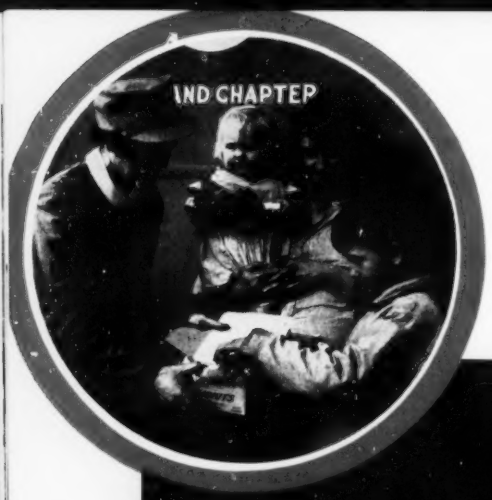
Lloyd Partain, AFA director, one of three named to serve on land-use action committee

The education group, headed by Morris Fonda of Columbus, Ohio, Friends of the Land, emphasized more conservation education in schools, teacher training and extension of education among urban groups.

A group on "forests, waters, wildlife and recreation," presided over by Mr. Gumbel, stressed the need for a policy which embraces proper consideration of all natural resources, definitive and inclusive legislation and flexibility of programs to meet local conditions.

The group on "relationship of financial and business interests to proper land use and conservation," headed by A. G. Brown of New York, the American Banking Association, called for acceleration of the pace of conservation effort and the "development of a dynamic land-use policy which will arouse everyone, businessmen, lenders, industrialists, workers, educators and others to prompt action."

"How to publicize a basic land-use policy to obtain acceptance on the part of the public," was the subject of a group headed by Mr. Partain. This group believes that with the adoption of a national policy providing for adequate research, unity of forces and agencies with a direct flow of responsibility from national, state and local agencies, and a program of development, utilization and conservation of natural resources on a business-like basis, the various information media can contribute effectively toward obtaining public acceptance and regard for it. The group strongly recommended "that legislation embodying these principles be immediately enacted by the Congress," and further recommended where necessary that "state and local governments inaugurate appropriate companion actions."



The awful destructiveness of forest fires and the need to guard against them is driven home with smashing impact in this sermon in technicolor about Maine's 1947 tragedy. It deserves an "Oscar"

CLINT Davis, of the Cooperative Forest Fire Campaign, and Photographer George Ortlieb of the U. S. Department of Agriculture, reached the Maine fire the day of the "big blowup," October 23, 1947. Between jobs of helping evacuate families from endangered zones, they took some of the most dramatic fire action pictures in forestry history—1,600 feet of hell in closeup technicolor.

Once things had calmed down and Davis and Ortlieb had a chance to develop their pictures they knew they had something. Why not a documentary motion picture that would sear the warning "Prevent Forest Fires" on the consciousness of millions of Americans in letters of fire? The result was "Then It Happened," produced by the Forest Service and the Motion Picture Service of the USDA and sponsored by the Association of State Foresters, the Advertising Council Incorporated, and the Forest Service.

Bill Bergoffen, in charge of radio and television activities for the service, started work on a story. Another camera party headed by Walter Scott, production manager of the Motion Picture Service, rushed to Maine to shoot typical pre-fire settings for background material. Bergoffen's script called for two good narrators. They were found in Ross Martin, of CBS, and Tom Chalmers, the voice heard in the documentary film "The River." Sound Man Reuben Ford started working out the shrewd effects called for in the script and finally called in members of the National Symphony Orchestra. In editing, the footage was cut to 400 feet requiring ten minutes to show. The film cost $4,000 and required six months to produce. It's an exceptionally good job. Bergoffen's buildup is leisurely and sure up to the big fire scenes when the spectator is swept along on a cataclysm of violent action that practically blisters his face as he watches.

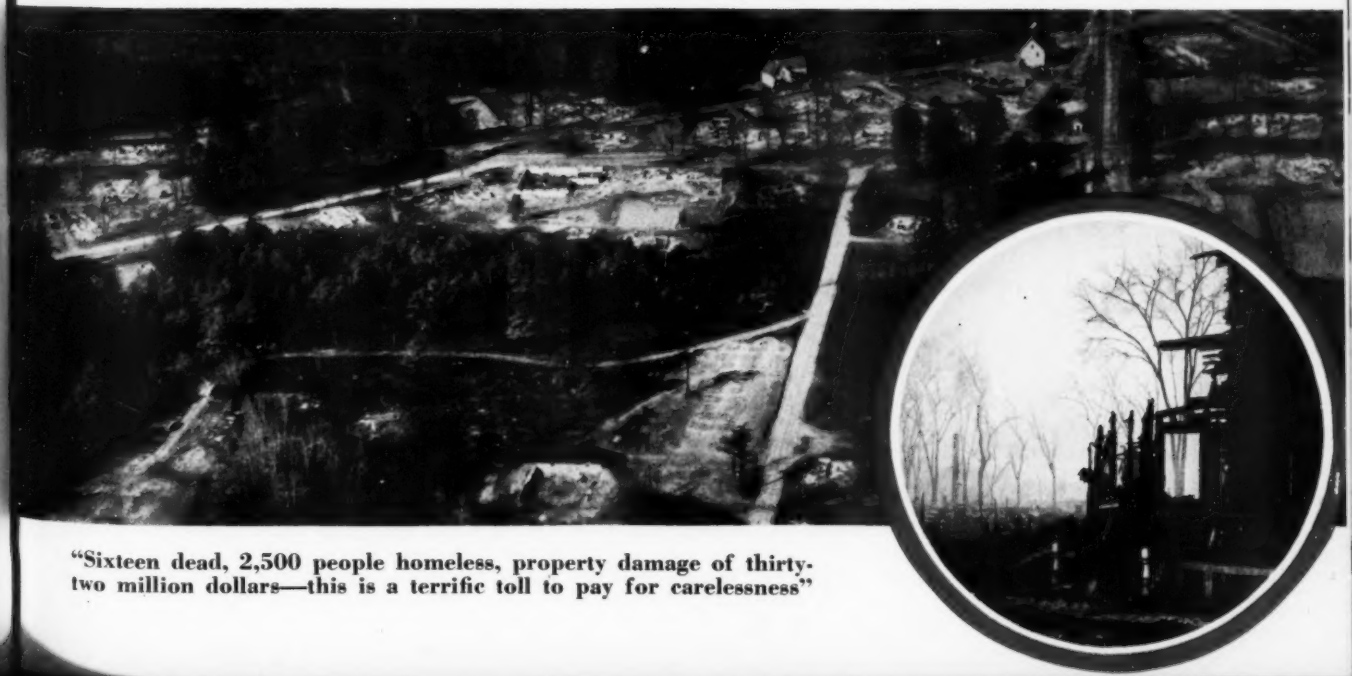
All Americans should see this film. It is a smashing frontal attack on carelessness, the No. 1 Public Enemy of our forests. Chairmen of clubs and special groups will be doing their communities a real service by arranging showings of "Then It Happened." It is free. All that is required is a 16 mm. sound projector and a postcard to your state forester or any regional office of the U. S. Forest Service.

"People had to flee from their homes in the face of the onrushing flames"

"Men rallied around and did their level best to check the fire's terrible spread"

"With a strong wind behind it, the fire rushed through the tinder-dry forests"

"The fires rolled on. Here was swift disaster, terribly real, awful, frightening"



"Sixteen dead, 2,500 people homeless, property damage of thirty-two million dollars—this is a terrific toll to pay for carelessness"

SIESTA MAÑANA

A United Nations forester visits Latin America and finds a technical revolution in progress. A drowsy, wait-until-tomorrow philosophy is fast giving way to an eager, blueprint-in-hand, let's-do-it-now vitality that is playing an important role in the development of forest resources

By M. A. HUBERMAN

PART I

LIKE the coins I brought home for my young daughter, life in each South American country I visited last year seemed to have two sides. There was the drowsy, easy going, romantic Latin America; and there was the busy, eager, blueprint-in-hand, let's-do-it-now, exciting, technical side. You might call one the contented *mañana* and *siesta* side; the other is the side that impatiently wants to put off the *siesta* until some distant *mañana*. Let me sketch both faces in somewhat more detail.

An Indian woman in a white straw hat and brilliantly colored blankets and shawls squats on the sidewalk of Oroya in Peru, drowsily offering for sale handmade trinkets and mineral dyes. Against the shady side of a yellow adobe store displaying bananas, peppers, papayas and other colorful fruits in Acapulco, Mexico, sleeps a white clad, bare-footed figure of a man under a straw sombrero. Near Turrialba, Costa Rica, a man walks slowly along the dusty road ahead of his gaily painted, creaking, solid-wheeled cart laden with fuelwood, resting his slender guide pole on the heavy wooden yoke of his plodding oxen. In the plaza of Santa Cruz, Bolivia, sit two citizens gesticulating, smiling as they talk about how the heavy rains have again changed the streets into water-filled canals. In Rio a group of men are keenly absorbed in a dice game, entirely oblivious to the beauty of the Bay, Sugar Loaf, or Corcovado, all of which can be seen from the black and white tiled sidewalk in front of their cafe. All of this is the Land of Mañana, the Latin America of the travel folders.

But the other side to this great region under the Southern Cross shows how our neighbors are facing many of the problems which have confronted, or are confronting us. And they are beginning to solve those problems, by themselves or with help from us, in ways which, until now, we have preferred to call the U.S.A. way. Symbolized by the posters of the airlines, showing shiny new four-motored planes flying above squatting Indians or lop-eared burros, it might be called a peaceful revolution. This new style technical *revolucion*, like the industrial revolution on other continents and in other years, has progressed, further in some countries than in others, and more in some fields of activity than in others. But the important thing is that it is progressing.

This spreading feeling of *siesta mañana* is well illustrated in the forestry and conservation efforts of a number of governments. Instead of waiting for enlightened, venturesome private capital to recognize the opportunities in the tremendous post-war demand for lumber, plywood and paper, these governments have set up quasi-public development corporations to use public funds for initiating or enlarging logging operations, transportation facilities and sawmills. In one country, Chile, the development corporation, as a preliminary step, had a complete forest resources survey made by a mission from the United States to determine the practical possibilities of such expansion. Other countries, recognizing the wisdom of having an inventory as a basis for rational exploitation, are making arrangements for similar surveys.

Chile's development corporation, knowing how much timber of sawlog or veneer log size it has, and where the best and most loggable areas are to be found among the picturesque lakes and mountains, is purchasing machinery to start the logs rolling to the mills. The U. S. mission estimated Chile's own requirements for lumber, plywood, pulpwood, fuelwood, railroad ties, bridge timbers and telephone poles. Chile's building program, like that of other countries, was held up during the war—so there is the immediate incentive to catch up at home. But other countries, not as fortunate, have an even larger need for repairing war damage to houses, factories and railroads and are anxious to buy lumber and railroad ties. Chile can, therefore, make a choice between using its wood products for its own domestic needs, or obtaining foreign exchange by selling to the export markets.

A number of responsible officials of the development corporation are young engineers and foresters, trained in the United States. They admired the mechanized operations of our West Coast logging shows and high-speed, precision sawmills. They are anxious to copy, on a smaller scale, the use of tractors, logging arches, chain saws, big log-trucks on improved roads, electric-powered shot-gun feed carriages, fast band saws, edgers, trimmers, planers, and dry kilns with controlled temperature and humidity, in those situations where the quality and volume of timber can justify the expense. Most Chilean logging and sawmill operations have been using antiquated equipment. It is the hope of corporation technicians that older operators will eventually change their methods and equipment after they have a chance to watch the successful operations of the corporation enterprises. It is further hoped that private operators will eventually buy out the corporation's holdings, after efficient operation methods have been established as practicable and profitable under Chilean conditions.

Of course, these young technicians are realistic enough to know that all United States methods and machinery cannot be applied bodily in Chile, unless they make the necessary adaptations. And besides, they did not

THE AUTHOR is forester with the United Nations Food and Agriculture Organization, and is now in the South Pacific on a special forestry mission. He was formerly scientific consultant with the Army General Headquarters in Tokyo—and logging engineer with the Division of Private Forestry, U. S. Forest Service.

admire everything they saw in this country. For example, they had seen acres and acres of cutover forest land without young trees to provide for the next crop. They are eager to postpone their *siesta* until *mañana* by putting our power machinery to work in Chile, but they are wisely unwilling to sentence their newly expanded wood industry to a permanent *siesta* at some not so distant tomorrow through unwise cutting. After all, this was an old story in much of south central Chile, where timber had been cutover and burned over, and the stump land was now producing nothing. It was with this part of Chile's forest land in mind that the corporation had asked the U. S. mission to recommend a suitable national policy and forest legislation to make sure that timberland, which was to be exploited under the new program, remained in shape to produce timber permanently.

The Chilean technicians remembered that the publicly owned forests they had visited in the U. S. were being managed on what the Yankee foresters called "sustained yield." Furermore, the cutting operations on the national forests always left some timber for another early recut and above all provided for new young trees to fill in the gaps and grow up to make new crops. This was why they were so happy to see the mission's recommendations to set aside a large acreage of forest land for national forests and national parks; to pass legislation requiring good cutting practices and making sure of protection of the forests from fire; and to reorganize and strengthen the government forest service so it can properly administer the public forests, advise private operators on good forest management methods, help educate the public on the need to prevent forest fires, to enforce cutting practice legislation, and to conduct a research program.

After all, it was getting monotonous trying to explain to visitors why the Chilean government with one hand maintained forty-three nurseries to grow and sell tree seedlings for windbreaks and shelterbelts, sand-dune control, and large-scale forest plantations for pulpwood, fenceposts, fuelwood and for sawlogs, according to the precepts of the European forester Frederick Albert who came to Chile in 1910, and on the other hand did nothing about the wasteful cutting and the burning of timberland in other parts of the country. But the problem remains as to how to get such a policy and adequate legislation adopted and sufficient appropriations made to carry it out. The technicians are hopeful, however, that the potentialities of Chile's timber resource will be recognized and the necessary legislation will be enacted before it is too late.

Certainly if the government wishes to attract outside capital into forestry enterprises, it will have to provide some assurance of its serious interest in the timber, at least to the point of assuring a long-time source of raw material. This can best be done by carrying out the recommendations of the U. S. mission, not as a reform measure, but as a means of assuring that the collateral—the growing timber of Chile — will be safeguarded. It would be just the same as if any banker in lending money to a factory operator were to insist that precautions be taken to prevent fire damage to warehouses, storage yards and to the factory itself. Why not?

"Why not, indeed?" asked one of Chile's forestry technicians. "It would be good for Chile, for the new forest industries, and for other South American republics who could profit from our experience."

That is only the government part of the picture. In addition to the development corporation there are several private companies under forward-looking leadership, which see the profit-making possibilities of expanding and modernizing their wood-using plants. With enlightened self-

Symbolic of the new day in Latin America is this hydro-electric dam in Puerto Rico. Extensive tree planting will protect the watersheds

The Latin America of the travel folder is this oxcart in Costa Rica. Its load of fuelwood is one of the country's important forest products

interest, these organizations have sent promising young men to the United States and abroad for training. On the advice of these returned technicians they have planned and installed new equipment, modernized their processing, and set up a modest budget for continuing research programs. They have begun to turn out higher quality plywood, better dried lumber, and have added new production lines to utilize material that was formerly wasted.

With further enlightened self-interest they have begun to replant their cutover land with trees from their own nurseries. They are also beginning to set up their own fire prevention and fire control organizations. It looks as though they are doing what needs to be done to stay in business for a long time. Their technicians trained in this country have told them of the sad cases in the Lake States, the South, and more recently in the West where not only sawmills, but whole towns dependent on those mills, had to close up because of lack of reachable raw material. Perhaps Chile can profit from our experience by taking preventive measures, which are cheaper for the nation than curative ones. It may not be too much to hope that these progressive private companies in Chile will join with the government development corporation in supporting a real conservation legislative program.

This would be a sure enough case of *siesta mañana*, wouldn't it? And Chile is not an isolated instance.

Venezuela has also set up a development corporation, amply financed by government funds, to foster new agricultural and industrial enterprises. This corporation, as well as the Ministry of Agriculture, is staffed with technicians, some of them trained in the United States. Together they are tackling, among other things, the job of getting a modern lumber industry started. The oil fields, the source of Venezuela's income, and more recently the new steel industry, have been importing most of their lumber for construction purposes. The tremendous new road building schedules require bridge timbers and other lumber items. The beautiful schools now being built all over Venezuela need lumber for interiors and for furniture. New offices and residences in Caracas and other cities could utilize native wood if it were available in satisfactory sizes and quality.

Hence the development corporation and the Ministry of Agriculture are turning their attention to the untapped Orinoco River basin, and to the eastern slopes of the Andes. And the technicians are not content to wait for tomorrow; they want the necessary information from surveys *now*, even if it means flying the entire country to get aerial photographs of the forests; they want the most favorable logging chances chosen as quickly as possible; preferably *now*; they want suitable sawmill sites selected so they can start site clearing *now*; they want a list of all types of equipment and machinery so they can begin placing orders, but *now*. And they are looking to the Food and Agriculture Organization of the United Nations for the best available technical help they can get. Just talking to these technicians is enough to infect the listener with their enthusiasm and to make him just as sure as they are that all of their plans can be carried out—in a hurry.

And they are interested in other phases of natural resources. Their soil, for instance, in some parts of the country has been treated very badly—as badly as, or even worse than, some of the lower Piedmont areas in our South. There are too many people in certain localities in comparison with what the weakened and eroding soils can support. So the Venezuelan Government asked for a United States mission on soil surveys and conservation. Similarly, several countries have benefited from such surveys made by the Pan-American Union. This mission surveyed the soils of the country, classified them as to what they could produce, and recommended the steps to be taken to prevent more serious erosion and to reclaim the gullied and badly washed slopes. Several young *agronomos* went to the United States for training and have returned to help carry out the mission's recommendations. They are just beginning to make real progress in getting seeds of good soil holding plants and vines, in advising farmers how to build terraces, drainage-ways, small dams, and other structures. The job is big, and the beginning is small, but the technicians are convinced of the ultimate success of their work.

In 1945 Venezuela was host to the Inter-American Conference on Agriculture. Representatives from all over South and Central America, the Caribbean Islands, and the United States were there to explore all of the problems affecting agricultural science. There was much talk about how critical erosion was; how fertility of the soil was being lost; how the population kept increasing; how something ought to be done. The technicians were impressed with the need for action, so they have been concentrating on doing something about the situation while others continue talking about it and passing resolutions. They knew that although talking is necessary to get legislation and appropriations, such talk didn't slow down the running water nor hold back the eroding soil. That could be done only with carefully planned *work on the land*, using all the scientific knowledge and technical experience available. Now they are trying to get the elements of soil conservation included in the courses to be taught in the expanded school system of Venezuela. The new generation of teachers and pupils will be important allies to the technicians in their efforts to hold the soil, build up its fertility, improve the agricultural practices on the hilly lands, and help Venezuela produce more of its own food and other products of the soil. Here again we see that the technicians are not content to wait for *mañana*, they insist on working through today's *siesta*.

How about Brazil? Isn't there considerable forest land there? Yes, the Amazon River basin is a huge reservoir of timber which has been tapped on only a minute scale for mahogany, cedar, special cabinet woods, rubber, and certain vegetable oils, waxes and drugs. Then there is also the Parana pine region of southern Brazil. Of course, they don't have the same expression for *siesta* and *mañana* as do the Spanish speaking countries. But they have a Portuguese saying, fairly general through Brazil, that was used whenever a new idea was proposed, or some change was recommended: "*Deixa como esta para vir como fica*," meaning, "Leave it as it is to see what happens." This is heard less and less frequently nowadays, as more and more trained technicians in responsible jobs do their part in changing the status quo.

Take the Parana pine situation during the war as an example. The state railway, which runs through the Parana pine region, was unable to get the normal number of replacements of cars or locomotives during the war years. Likewise labor for maintenance of the right of ways, laying what new track was available, or replacing worn-out railroad ties, was hard to find. The result was an out-of-date, overloaded railway system, using old wood-burning locomotives, unable to handle all the traffic along its lines. The sawmill men and ply-

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TROUBLED WATERS IN THE EVERGLADES

By JAMES B. CRAIG

Landowners who contend there's oil under their Everglades holdings may prove a stumbling block to the rapid unification of America's newest park

Allan D. Cruickshank from NAS

The snowy egret—a premier attraction in Everglades National Park

FLORIDA'S oil bubble has not yet burst as far as some property owners in the vicinity of Everglades National Park are concerned. There's oil under the Everglades, they think. And they intend to put up a stiff scrap for what they regard as "their rights" when Uncle Sam comes around buying up the parcels of land that comprise the park's checkerboard of private holdings. Needless to say, these "rights" will come high.

Last month the oil hopeful landowners won what might be regarded as a holding action in their efforts to cash in on their sedge land. That was when Congressman Frank A. Barrett's subcommittee of the Public Lands Committee deferred action without prejudice on the Smathers bill (HR 3378) which would authorize the National Park Service to acquire private holdings in the new park. The recalcitrant owners hope to smother the Smathers bill, at least in its present form—and so far they have been doing pretty well.

Previously reported favorably to the full committee, the measure was sent back for more study when the heat was turned on. The property owners don't like the present bill because it makes no provision for them in the event oil is ever produced in the park by the federal government after it takes over. Under the bill the state of Florida would be in a position to collect royalty on any oil so produced in time of emergency, but not the landowners. So they want specific assurance that they would receive royalties, too. Also their heirs. And they are campaigning for a twenty-five year test drilling period, park or no park.

News that an attempt is being made to block the Smathers bill will probably come as a surprise to a great many people who read last December of the dedication of the new park, the third largest, by President Truman. Judging from press and radio reports, the public gained the impression that all elements were happy about the park and that the National Park Service would proceed to tidy up the loose ends and knit the area into a compact unit. But all was not serene. Some Everglades property owners were telling each other dourly that the taxpayers of Florida were being sacrificed in the park's creation. Didn't records in Washington and Tallahassee, they asked, show the Everglades to be "potentially, the best oil lands in Florida," and that "subsurface ground analyses are in many places in substance the same geologically as were found in the best oil fields of Texas"?

"We ought to organize," these dis-

Press Association, Inc.

Seminole Indians presented President Truman with specimens of their craft work at the park's dedication last December

gruntled landowners declared. Then, it was felt, they could make a dent where it would do the most good.

Soon a small but potent bloc of owners started mapping strategy. The Smathers bill would be their first objective. Some admitted privately they would probably be whipped before they started if the bill came out of committee. Florida's elected delegation in Congress is for the bill. So, it appears, is a majority of Floridians, who see in the new park a lucrative source of future tourist income. Others concerned with the more vital necessity for the park feel strongly that it represents the last opportunity to stop the debacle of destruction that has attended the tragic history of the Everglades. Where these more far-sighted citizens are concerned, it is now or never.

That the oil-hopeful bloc has achieved its first objective, for the time being at least, no one can dispute. There is little likelihood that the Smathers bill will be taken up again at this session of Congress. This means the resistance has won the key consideration asked at hearings last July. At that time Ivar Axelson of Coral Gables, who owns approximately 30,000 acres of glades land, told the subcommittee there was only one answer to the questions to be solved—time. Let Congress take the time to investigate the rights of the property owners.

"This means," Axelson stated, "that HR 3378 should not be reported out of committee at this session of Congress."

Armed with $2,000,000 donated by Florida, and the best wishes of a majority of Floridians, the Interior Department had hoped to see passage of the Smathers bill at this session. After that the National Park Service could have quietly proceeded with the business of setting up a new park. It was hoped that opposition would melt as the force of public opinion impressed oppositionists with the acute need of raising the water table in south Florida and restoring the balance of nature in the Everglades.

The opposition is not melting. If anything, it is becoming more vocal and represents a tightly knit force of an estimated 200 landowners. The National Park Service takes a dim view of the possibility of future legal entanglements involving individual oil royalties. Originally, the Interior Department agreed to give the state of Florida ten years in which to acquire privately owned lands in the park and, because of oil possibilities, agreed to accept titles exclusive of oil and mineral rights, where they could not be obtained otherwise. However, since the government cannot accept titles for national park land unless free of all incumbrance, the incumbered titles are to be held by the Fish and Wildlife Service until such time as they can be completely cleared within the ten-year period. Now the property owners are asking for permanent royalty rights—which would mean permanently incumbered titles.

The request for a twenty-five year test drilling period would also create an unhappy situation as far as integrated park improvement is concerned. Indiscriminate construction of roads and drilling operations over a prolonged period could not help but worsen an already serious situation where nature's applecart has been badly upset. Past experience has shown that man's tinkering with nature's balance in the glades is a hazardous business. The region is unique. There is nothing like it anywhere else on earth and it cannot be used as man has used most terrain. The glades area can best be described as a sponge dripping with fresh water. The sponge serves as a buffer against the walls of salt water leaning against it on the east, west and south. Under agriculture the shallow soil shrank, blew away and burned. Under the ditching and drainage that attended agricultural efforts, deep arteries of fresh water in the affected localities were severed, and entire areas weakened to the point of collapse. The salt water from the adjacent seas started its insidious intrusion, a "squeeze play," according to experts, that gradually turned once water-soaked areas into parched savannas. Soon, water supplies of whole areas were threatened. Stock was endangered. Humans became alarmed. And rare plant, animal, bird and marine life in America's only tropical area was in grave peril.

A competent commission, unhampered by political and other influences, was appointed to study the situation. Its conclusions were that the balance of nature in the Everglades was being upset, and that the entire area from slightly north of the Tamiami Trail to Cape Sable should become a national park. A single plan of development and water control for the region was urged if the salt water intrusion was to be checked.

Briefly, the prime prerequisite for restoring nature's intricate and delicate balance in the Everglades appears to be to simply leave it alone. That is why scientists are of the opinion that it is of vital importance that the area be brought under the jurisdiction of one responsible organization—in this case the National Park Service. Approximately 865 thousand acres of land have already been acquired for the park—a million and a quarter are called for. The land already acquired resembles a dough-

nut with the hole consisting of lands in private ownership in the vicinity of Whitewater Bay. Other privately owned lands are contiguous to the present park on the north, east, south and west.

Some of the best scientific minds in the United States are agreed that the Park Service must have jurisdiction over all this land if it is to accomplish the job to be done. There must be no division in aims and purposes in this area if the water table is to be raised, the wealth of game and animal life maintained, and America's only sub-tropical region kept intact. To accomplish this task, the service, in accordance with its policy, must have these lands free of incumbrance. Thus the issue appears to be joined between the National Park Service and individual property owners who are willing to go along with the park providing they get their own way in regard to oil development and permanent royalty rights.

It is probably unfortunate that much publicity attending the drive to create the park focused on the area's potentialities as a tourist magnet, and not enough on the basic reasons for preserving the area. For months prior to its establishment, publicity played up the fact that twenty-one million Americans visited national parks in 1946 — and that Florida should get its share. Furthermore, it was emphasized that the Everglades park is strategically located in the southernmost portion of the state, a geographical fact that makes it necessary for park visitors to traverse the state twice. Mileage figures were computed to show the shortest route to the park through Florida counties to be 780 miles, the longest 1,370. Thus, it was pointed out, if the average number of park visitors is a conservative million a year and they all spend four days in the state—the very minimum—the yearly revenue to Florida communities would exceed $40,000,000.

"We have to remain constantly viligant to prevent raids by those who would selfishly exploit our common heritage for their common gain."—President Truman, Dec. 6, 1947

This sort of talk led many Floridians to regard the park as a good investment primarily for its tourist possibilities, and "Tourists Accommodated" shingles were given new coats of paint. True, there might be oil down there, Floridians said, but after a brief boomlet in 1943, the possibility of oil in gusher quantities appeared less likely—and anyway Floridians were keeping a finger in that pot by hoped-for state royalty provisions in congressional legislation.

The ironical aspects of the principal issues given weight by many Floridians could not have been entirely lost on Ernest F. Coe, father of the park plan, and other park stalwarts. True, the park is a good investment in Florida's future but *not* primarily because of the possibility of attracting great flocks of tourists or garnering future oil royalties. The real purpose of the park, to purists such as Coe, was to stop once and for all the senseless squandering of the Everglades area resources — including water and its plant, animal and bird life. What it all boiled down to, Coe's group said in substance, was that unless exploitation ceased, in a few years there would be no Everglades.

The point is, in view of the splurge of publicity regarding the park's tourist possibilities, there are going to be some disappointed Floridians if the welter of tourist propaganda doesn't live up to expectations. Oppositionists who took the view Floridians were being sacrificed in the creation of the park, were quick to take advantage of this publicity and categorically denied that the area would attract millions of tourists.

As recently as July, 1946, J. Tom Watson, Florida's attorney general, was asking, "What are we supposed to get in return for this park? I think reasonable people will realize that the same tourists who will not and cannot wander over the Everglades today because of its insects, reptiles, muck and swamp, won't do it just because of its being called 'park.' And neither will they do it in years to come, because the area cannot be improved."

D. A. McDougal of Coral Gables dismissed reports that the park would draw millions of tourists a year as "newspaper talk." Mr. McDougal, who expressed his views to a reporter in the lobby of the public lands committee room in April, ventured the opinion that "if the park has 100,000 visitors a year, 95,000 of them

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Royal palms stand guard over the nation's only tropical park—a sanctuary for bird and animal life

U. S. Interior Department

ASPEN'S PLACE IN THE SUN

This "shrinking violet" of the Utah forest, long on the list of secondary species, is making a bid for its rightful place in the society of wood

By JAMES D. CURTIS

IF, on a late September afternoon, you were to drive east on Route 14 from Cedar City in southwest Utah, you would be treated to a sight you would never forget. For this is the time of year the mountainsides of Utah are transformed into a kaleidoscope of color.

As you zig-zagged up this highway, and long before you reached Cedar Breaks National Monument, you would first notice the mauve and brown of the scrub oak intermixed with the green of the juniper. And then, higher, your eyes would be attracted to the vivid splotches of blood red where the vine maple is wearing its last seasonal robes of scarlet. Now you are 8,000 feet above sea level and the colors begin to change. The squat and sturdy juniper and scrub oak give way to the dignified spires of the Engelmann spruce and alpine fir. And maple encounters a competitor—the rich yellow of the aspen, or quaking asp, so called because in the slightest breeze the leaves flutter, not restlessly or violently, but contentedly. Finally, as aspen increase on every side, contrasting quietly with the conifers to form an extensive forest mantle, you reach Cedar Mountain lookout.

From the parapet you gaze down upon a gigantic patchwork quilt of aspen, splashed here and there with spruce and fir. The golden panorama extends to the rim of the plateau curving out of sight southward over the Kolob height of land and into famed Zion Canyon. This is a mental treasure owned by a relatively lucky few because from Logan, in the north, to picturesque Kanab in the south, Utah dresses in her floral finery after the first school bells chime and after most of the tourists have left for their own firesides.

Utah has some of the finest aspen stands in the country. They vary from the bushy, slow-growing trees found around 7,000 feet elevation to the grotesque snow-ruptured freaks at 10,000 feet. In between these extremes are many fine stands of all ages—from thrifty saplings around twenty-five years to weather-beaten patriarchs of probably 200 years.

There are stands mixed with white fir, alpine fir, and Engelmann spruce—and there are pure stands extending over large areas on both private and public lands. Nobody knows exactly how much aspen there is in Utah—estimates run from seven million cords for the entire state to ten million cords on the Dixie National Forest alone. The latter guess may be optimistic in terms of accessible, operable stands but, on the other hand, it would seem that the former estimate is unduly conservative. No one who has examined a few sample areas, who has driven for twenty miles through pure stands, and who has seen, in the cheery atmosphere of these interesting forests, trees which provide a cord of peeled wood and acres which support up to sixty cords of merchantable volume, will deny that there is a treasure of aspen wood in the Beehive State.

Aspen has the widest range of any tree species in the United States. Sil-

vicists generally agree that, in common with some other species, its prime requirements for establishment are moisture, mineral soil and plenty of light. Aspen finds these in the 7,500 to 9,500 foot altitudinal zone where it forms a mixed forest with firs and Engelmann spruce. If the species behaved true to form, as it does in the Lake States and New England, it would seed in on burned or similar bare areas and, with plenty of spring and summer moisture, form a fast-growing cover crop. This would be replaced, after thirty to seventy-five years, by other hardwoods or conifers.

In Utah, however, aspen behaves quite differently. In the first place few viable seeds are produced due to the dry, hot weather of spring when the fruit should mature. As a result, it relies on its root suckering and, to a lesser extent, on its stump sprouting ability to reproduce itself. Furthermore, if a fire invades an aspen-coniferous stand, the aspen reproduces readily by suckering but the conifers, which do not grow quickly at this altitude, must reproduce from seed. Often the seed source is distant, which means that the replacement of aspen by conifers in the Utah mountains is a slow process at best. The impression is thus often gained that the aspen is actually replacing the conifers.

Since about 1890, however, when grazing started on a sizable scale—stock have kept the volume of inflammable grasses low. As a result, the danger from large and fast-spreading fires has been greatly reduced. In some cases, of course, grazing has been too heavy and has caused more damage than fire; but in others it has assisted in the quicker establishment of conifers. Stock find young aspen shoots succulent and palatable. Indeed, no aspen reproduction of any consequence occurs where sheep or cattle graze.

But, it might be asked, doesn't anyone ever do anything but admire the aspen forest—or use it for grazing? The answer is yes—there are numerous uses for the wood of aspen. This demand, however, has not as yet made it necessary to cut aspen along the highways, or in any way interfere with the beauty it gives to the Utah landscape.

In its own quiet way, aspen has served the people of Utah well. In pioneer days, when men literally struggled for their lives against Indians, heat, insect plagues, crop failure and drought, resources close at hand were at a premium. The early Mormon welcomed the wood from the aspen which is easily worked, light in weight and strong for its genus. From it he made household furniture, utensils, and other articles for his homestead.

During the past century aspen has been used in various ways, notably for pit props in Utah coal mines, fuel, fruit crates, fencing and even telephone poles. It is still used commonly for fuel and the "worm" or "snake" fences for which it is admirably suited in an arid climate.

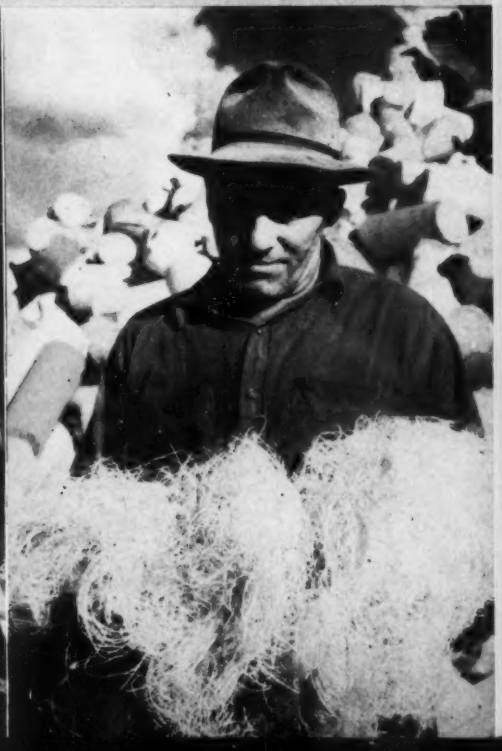
But the use for which aspen is best suited is as excelsior. When properly machined and when the right quality of wood is used, this species possesses splendid shredding properties. Shredded wooden "wool" is in great demand today not only because of its cushioning properties, but it is an excellent filter. Aspen excelsior is used in large amounts for packing such perishable fruit crops as watermelons, avacadoes and cantaloupes; for padding in furniture packing; for coffin cushioning; and for several kinds of air-conditioning systems, including automobile air-conditioning units.

Latest use for aspen, in stride with the times and the tremendous demand for building material, is as a structural wallboard, with a binder of excelsior, which is soundproof, fireproof and waterproof. This product, which looks like fossilized shredded wheat, can be sawn and nailed like a board. More, probably will be seen of this product in the near future.

There is much to be said for the growing of such a profitable crop as aspen. In the first place, it is a fast-growing tree in a region where other tree species struggle for their very existence. There are certain instances now, and it is reasonable to suppose there will be others, where aspen can be used in small sizes. This means that in certain accessible areas now and over a wider territory later, this species can be thinned. When forests can be intensively treated by thinnings, faster growth of the re-

Aspen wood possesses good shredding properties, makes excellent excelsior. This pile of aspen bolts is ready for machining

Cedar City mill operator with armful of "wooden wool"



U. S. Forest Service

This area, seared by last fall's fire, indicates the vastness of Maine's timber wealth

THE FORESTS OF MAINE

TUCKED away in the northeastern corner of this country is a region most Americans have read or heard about but comparatively few have explored — the great northwoods of Maine. This lake-dotted and stream-laced wilderness is big by any standards, even by those of the southern and far western timber regions, for ten million acres add up to a lot of woods in any man's country. It reaches far northward into the alien yet friendly embrace of Canada's maritime provinces.

Foresters estimate that the Pine Tree State possesses fifteen million acres of forest, two-thirds of it wild land and one-third farm and other small woodlots. This may seem puzzling when set before the background of tiny New England, where no other state can boast so much as ten million acres of land of all kinds. The explanation is that Maine is almost as large as all other New England states combined—and is actually five-sixths woodland.

This easternmost of our states presents certain contrasts, such as unpeopled wilds and highly developed agricultural and industrial communities. Its seacoast abounds in rocky promontories against which storms beat fiercely, but behind each headland is a quiet bay or inlet where ships find shelter. Even in its contrasts Maine's overall aspect is one of moderation.

Agriculture is widely distributed and productive. Potatoes are grown in vast quantities, yet farming is mostly a matter of small units supporting single families. Industries are many and varied, but not too big to retain local character and a degree of local ownership appropriate to such an old settled region. Farming and manufacturing are mixed

By JOHN B. WOODS

throughout the countryside. Rounding a highway curve one never knows whether he will see a grazing dairy herd, a busy pulpmill, or a basket weaver's modest shack. Yet he can be certain, in practically any part of the state, that somewhere in the picture there will be trees, and some of the trees will be white pines.

Inevitably a region so vast as Maine will attract sportsmen. Its thousands of square miles of wilderness, uncrossed by land roads yet notably supplied with waterways upon which canoes can travel long distances, challenge the hunter, the fisherman, and those equally fortunate folk who simply like to rough it out-of-doors. Along the coast and in the southern and central farming sections may be found facilities for numerous forms of recreation. Thus there must be added to the list of Maine's principal activities, agriculture and manufacturing, a third, entertaining tourists.

A line drawn eastward from the joint corner of Maine, New Hampshire and the Province of Quebec, will enter New Brunswick a few miles north of Calais. South of this line will be found all of the state's important cities, most of its manufacturing, nine-tenths of its hard surfaced highways, all its seacoast resorts, most of its dairy farming, and timberlands occupying at least half the net land area. Northward will lie the forested wilds, countless lakes and streams, large and small, and a great agricultural region where potatoes are staff of life as well as the chief article of commerce.

From earliest colonial times forests have been of great importance to the people of Maine. According to some historians, America's first mechanically operated sawmill, a water driven

Five-sixths of Maine is wooded. It is a tremendously important wood-producing state. Everywhere one travels along drivable streams there are plants for shaping wood or processing fiber

sash saw that had been sent over from England, was installed at Berwick in 1631. Planks and deals of white pine, tall masts of the same wood, barrel staves of oak, were early exports from the coastal region, along with fish and furs. Soon the local men were building out of native materials the ships in which to carry these goods abroad. Today the ships have shrunk in size to schooners, but there still remain in the coast villages the splendid wooden mansions that shipping men built a century or more ago.

Eventually the southern and coastal regions were stripped of primeval timber stands, and the sawmill men perforce went north along the great rivers, Androscoggin, Kennebec and Penobscot. At about the same time, the Canadians were working inland along a fourth, the St. John, which, although it empties into the Bay of Fundy from Canadian territory, actually rises in northern Maine and drains most of that state above the latitude of Houlton. From midway of the nineteenth century the story of Maine has been pretty closely tied in with these four waterways.

To the casual observer the forests of this state today appear to be composed chiefly of mixtures of conifers and broadleaf species. Swamps usually are occupied by almost pure stands of the former, most often spruce or cedar, but sometimes there are mixtures in which tamarack appears. Strangely enough, mountain tops also frequently bear pure stands of spruce or balsam fir. Elsewhere it is common to see numerous hardwoods, with intermingled white pines, hemlocks and other softwoods. Probably when white men first settled here the forest appeared much like that of today, except that there were more white pines than at present, and individual trees were larger. And of course the country was practically all wooded instead of having innumerable openings where people live and farm or make things or accommodate out of state visitors.

A clue to the character of the primeval forest may be found in certain parts of the northwoods, in the shape of giant white pines and veteran yellow birches and beech trees of large size. Presumably such mixtures were widely distributed, but were progressively depleted by loggers and pulpwood cutters during three centuries of supplying wood to many and varied markets.

It is worthwhile to study briefly the influence of transportation systems or their lack upon the course of forest exploitation. At first logging took only those trees that could be rolled into tidewater and floated to mill, which meant that only white pine and other lightweight conifers were removed. Soon the settlers had pushed roads back a few miles into the wilderness, so that the more valuable hardwoods, such as oak and maple, could be brought out in winter. Later the far-spreading network of streams was put to use to bring logs out of the interior, and here again it was the timber that could be floated which came out, while the heavier hardwoods waited for roads to reach them. There still are places in Maine where fine yellow birch, maple and

Logging booms in Maine—three great rivers carry the bulk of the logs to busy mills

This permanent plant makes clothespins and wooden novelties. It is one of many in Maine

John B. Woods

beech are unmerchantable simply because there is no economical way to get them to market.

Railways helped to make timber available in certain localities, and eventually highways were pushed to within workable distances of possibly two-thirds of all Maine's forests. By the time this had come about, however, the primeval growth had been removed from those regions where the sawmills had operated, and trees were being grown on short rotations and cut early for pulpwood.

With 16,788,000 acres of woodland, all but 123,000 acres of it suitable for commercial timber growing, Maine today is a tremendously important wood producing state. Everywhere one travels, along highways or drivable streams, there are plants for shaping wood or processing fiber. There are ten wooded acres for every tilled one, yet so widely distributed are the latter that farming and forestry dovetail nicely together to everyone's advantage. Thirty-five thousand farmers own timber lots, aggregating more than two million acres, and a considerable number of them put in several weeks or months each year at logging or working in conversion plants. Even so, there are times when the northwoods lacks sufficient numbers of lumberjacks to get out all the pulpwood, logs and billets that are desired by industry.

Woodland ownership presents interesting aspects. A study by the U. S. Forest Service in 1945 disclosed that industrial and other holdings not including farm woodlots amounted to 14,368,000 acres. Of this 8,600,000 acres were in holdings greater than 50,000 acres, in thirty-one properties, while in the size group 5,000 to 50,000 acres, there were 143 ownerships aggregating slightly more than 1,600,000 acres.

In addition to farm lots there were many small tracts held by investors for income purposes. In fact, most properties in Maine are regarded as permanent forestry investments and are managed with more or less technical skill for production of wood and other values. In addition to pulp-paper and lumber companies, there are many families that own timberlands; some have been held so many years that original owners are long dead and their heirs several times removed hold the properties in undivided interests, leaving their administration to agents.

Management of such properties is a fairly well established and highly respected profession. The meticulous forester may criticize the results for certain apparent shortcomings, yet he would not be correct on all counts. In common with most other parts of New England, Maine has long enjoyed good markets for wood in a variety of shapes, a condition usually accepted as prerequisite to successful practice of sound forestry, and by the same token reasonably expected to assure it. Probably the most obvious faults are harvesting methods that smack of "high-grading," or taking the best trees regardless of the effect upon the remaining stand and future crop, and failing to cut often enough to assure optimum growth.

On the other hand, local foresters may point to the realities of difficult transportation, fluctuating market requirements and prices, relatively high property taxes, the constant attrition of insects and disease, not to mention the growth habits of such short lived species as fir, balsam and aspen. Such considerations weigh heavily with the owners, particularly those who are busy at other occupations than forestry, and frequently dictate management policies that are long on practicality and expedient but short on refinements of forestry science.

Public ownership of Maine forests is relatively unimportant. Uncle Sam holds 74,000 acres of commercial timberland, 46,000 acres being a fringe of national forest adjoining New Hampshire areas. The state owns 46,000 acres, while county and city ownership amounts to about 4,000 acres.

Thus timber growing is chiefly a result of private effort. In the opinion of Forest Service experts the annual growth for the state as a whole amounts to 760,000,000 board feet, of which 491,000,000 feet are softwoods and the remainder hardwoods, all of sawtimber size. Cordwood growth is estimated at 3,038,000 cords each year, two-thirds of it softwoods.

The basis of such yearly increment is found upon 9,339,000 acres of sawtimber lands, in 3,630,000 acres of pole stands and 3,696,000 acres of young growth, about three-fifths of which is at least forty percent stocked, while the balance is freshly cutover or poorly restocked. And the volume of timber now present is estimated to be 36,787,000,000 board feet of sawtimber, two-thirds of it softwoods, and 157,323,000 cords of wood from smaller trees and the tops of softwood sawtimber trees. Also included in this figure are the sound portions of trees not regarded as merchantable sawtimber. Nearly two-thirds of this cordwood is of hardwood species.

Dominant hardwoods of sawtimber size are birch, beech and maple, accounting for eleven billion board feet. Cottonwood and aspen add up to one and a half billion board feet. In softwoods, spruce and fir comprise two-thirds of the stand, white pine about one-sixth, hemlock, tamarack and the despised jackpine, and Norway pine the remainder.

Yearly depletion of timber in Maine is believed to be about a billion board feet of sawtimber, three-fourths of it softwoods, and about one and a third million cords of smaller material. The annual lumber cut is not less than 400 million board feet; pulpwood claims as much or more sawtimber, while other uses claim most of the remainder.

Three-fourths of the pole timber is used as fuelwood, with pulpwood accounting for most of the balance. Some small logs are cut into lumber. Two-thirds of all pole size timber that is cut is hardwood. These overall figures do not take into account the yearly losses to insects and disease. In the opinion of such informed experts as Dr. Peirson, state entomologist, these losses exceed manyfold the harvest of wood for use.

At least three serious epidemics are now marching across the state of Maine. Bronze birch borers have killed fifty percent of old-growth yellow birch, while another twenty-six percent are dying. The story of this catastrophe was described in the July, 1947, issue of AMERICAN FORESTS. At least one-third of Maine's stand of beech is already infested with scale (*Cryptococcus fagi* Baer) and one-fourth of the merchantable beech is dead or dying. Whereas the birch borer came from New Brunswick and moved westward, the beech scale appears to be moving eastward.

A quarter of a century ago northern New England suffered (in common with eastern Canada) the ravages of the spruce budworm. This pest now is returning across northern New England from the Adirondacks in New York. A new generation of balsam fir, his favorite victim, has grown up since the last epidemic and now must be harvested or lost.

Because of the prevalence in recent decades of serious insect and disease attacks, the Maine Forest Service has established a unique detection agency, manned by six forest insect rangers. One man to each fire protection district, they are trained in laboratory and field to look for and find insects and tree diseases of sinister nature. Each year they send in re-

(*Turn to page* 285)

S. L. Frost Named Executive Director

Texas forester selected by Board of Directors as executive head of The American Forestry Association will take office early in June

S. L. FROST of Bryan, Texas, has been appointed executive director of The American Forestry Association, succeeding Ovid Butler who retired March 31. At present acting director of the Texas Forest Service, Mr. Frost, who at thirty-eight will be the youngest executive officer in the Association's history, will take office early in June.

A leader in forestry education in the South for the past decade, Mr. Frost, prior to his appointment as acting state forester, headed the educational work of the Texas Forest Service, serving at the same time as editor of the *Texas Forest News*, as secretary of the Texas Forestry Association and, in 1947, as chairman of the Southern States Forestry Educational Directors Association. A writer of recognized ability, he has been a frequent contributor to AMERICAN FORESTS, many readers undoubtedly recalling his much discussed "An Air-Arm for Forestry" in the February 1945 issue, and "Growing Profits in Pine" in March 1946.

Recently decorated by General Carl Spaatz for organization of the wartime Civil Air Patrol of Texas forests, Mr. Frost was honored this spring also, at Texas A. & M. College, for outstanding accomplishments in the field of public relations.

A native of New Haven, Connecticut, Mr. Frost holds a bachelor of science degree in forestry from Connecticut State College conferred in 1931, and a master's degree in forestry from the Yale School of Forestry in 1933. Following his graduation from Yale, he entered forestry work in New England, later transferring to Colorado and Texas with the U. S. Forest Service. In 1935 he joined the staff of the Texas Forest Service as assistant forester, and was named chief of the information and education branch of the service in 1940. He was appointed acting director early this year.

Your Association is now conducting an intensive mail campaign for new members. It is with pride that we can announce more new members since the first of the year than during any similar preceding period in the Association's history. We have every reason to believe this volume of new members will continue.

It is imperative that the conservation of our country's forests and related natural resources be brought to the attention of as many influential people as possible. Because of the large volume of our mailings it is physically impossible to check all of the prospects against our present membership. As a result many of our members are receiving invitations, because their names appear on lists made available to us by cooperating organizations.

This will explain why you as a member may have received an invitation.—The American Forestry Association.

managing your WOODLANDS

A page dedicated to the management of woodlands, large and small — practical suggestions in procedure and technique and in the solution of problems on the ground.

What is your problem? American Forests will assist you in finding an answer. Address queries to The Woodlands Editor.

A LESSON IN PLANTATION MANAGEMENT

The life history of what is probably America's oldest planting of loblolly pine proves what foresters preach—that stands reach a point of economic maturity after which they tend to decline in value

Back in 1877, John F. Jester of Wicomico County, Maryland, planted a one-acre field to loblolly pine. That was the year American railroads were disrupted by strikes and bloodshed, eleven Molly McGuires were hanged in Pennsylvania and Russia declared war on Turkey.

Today, seventy-one years later, we still have considerable uneasiness in connection with a possible railroad strike, trouble in the mines and continual wonderment about what Russia is likely to do next. We also still have John Jester's field of pine—probably the oldest plantation of loblolly pine in America.

A lesson in plantation management may well be learned from these trees.

In 1877, Mr. Jester gathered wild seedlings from the woods and planted them in his field. These wildings thrived—and today the stand consists of 124 trees with a volume of 24,462 board feet. But what is most interesting from the standpoint of the prospective manager of tree plantations is the manner in which the stand has deteriorated in the past several decades.

In 1922 a study of the plantation showed there were 236 loblollies on the area as compared with today's 124. In other words, the number of trees has decreased at the rate of four-and-a-half a year over the past quarter-century. This death rate was hastened somewhat in 1932 when a severe fire swept through the plantation.

Equally significant is the decrease in timber volume. Measurements in 1932 indicated the plantation would yield 35,320 board feet an acre, or almost 11,000 board feet more than could be harvested today. While the trees had an average height of ninety feet in 1932, the stand now averages only eighty-five feet. This is due to the loss of the older, taller trees. The average diameter of the remaining trees, however, is fifteen inches; it was fourteen inches in 1932.

Yet diameter growth has slowed down—growth for the first twenty years exceeding that for the past thirty-five. Present diameter growth rate is one inch in thirteen-and-a-half years.

The general appearance of the stand also indicates that the trees have long since passed their maximum maturity value and will continue, as a stand, to decline in volume and value as one by one they die off at a rate in excess of new growth on the remaining trees.

What about the youngsters? Surely these trees have scattered plenty of seed over the years. Because of the dense canopy of the plantation—the trees were spaced originally at eight-foot intervals—loblolly reproduction within the area is practically nonexistent. The ground is covered with a thick growth of briars and grass.

Mrs. Mary Jester, the owner of the plantation, does not want to harvest the famous old stand. It is a landmark in Jesterville, and doubtless its historical and sentimental values are greater than the value that could be realized from the sale of timber. Further, so long as it is there, the stand will be a living textbook of forestry.

Selective thinnings during the life of the plantation would have resulted in increased growth of the remaining trees and some income from the thinnings. Openings made by heavier thinnings would have made possible the establishment of loblolly reproduction to replace the old stand.

The importance of protection from fire, too, is indicated. The history of the plantation shows that the death rate of even large mature trees was hastened by fire.

Not visible from the surface, but shown by borings made in the large remaining trees is the presence of decay. This likewise is a sign of overmaturity—a sign that the trees should have been harvested at an earlier date.

From a purely economic standpoint, foresters recommend that Mrs. Jester have the woodland cut, leaving enough seed trees to reseed the area. But Mrs. Jester plans to leave the plantation standing. It will serve as a demonstration of the life history of a planted loblolly stand.

John Jester's stand of loblolly planted in 1877 has become a living textbook for foresters. This picture was taken in 1932

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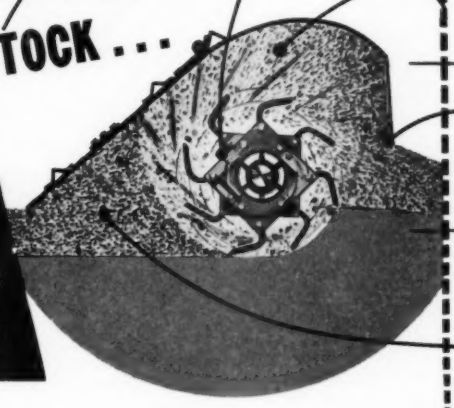
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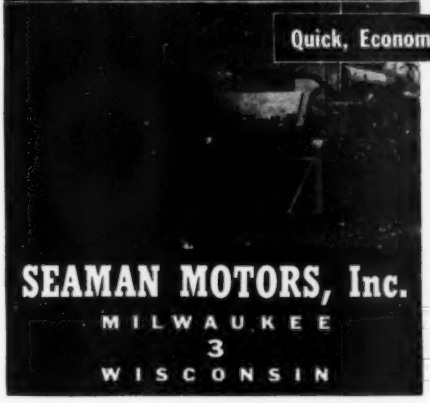

When land has been cleared of timber for planting of seedlings, the old buried tree and brush roots may be a problem for the old roots may foul the new stock. Here again, the SEAMAN has an important use for, operating with the hood open, it digs out the old roots in segments and throws them to the surface where they can easily be burned or gathered for removal.

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NEWS IN REVIEW

Lumber is one of the three most important raw materials required under the Marshall Plan. America's forest industries will be asked to supply nearly three billion board feet of lumber during the next four-and-a-half years under the terms of the European Recovery Program. Based on July 1, 1947, prices, the value of the wood products asked for in the European aid plan approximates $377,000,000. The plan also calls for the United States to supply sawmill and woodworking machinery and equipment worth $63,000,000. Because of domestic shortages of millwork, siding, hardwood flooring and plywood, most of the lumber exports under the European Recovery Program would be in the form of rough sawed lumber.

• • •

Roscoe E. Bell of Boise, Idaho, coordinator of the western phosphate program of the Department of the Interior, has been named assistant director of the Bureau of Land Management. Mr. Bell joined the government service in 1925 as a member of the blister rust control program of the Department of Agriculture at Spokane, Washington. From 1926 to 1935 he was engaged in teaching and research at State College, Washington, and the University of Idaho, Moscow, specializing in soils and land utilization. Since then he has served as head of the land classification unit and as soil survey specialist for the Farm Security Administration at Portland, Oregon; as a staff member of the Bureau of Agricultural Economics, Department of Agriculture in Berkeley, California; state representative of the Bureau of Agricultural Economics for California; and chief of agriculture at the Central Utah Project of the War Relocation Authority at Topaz, Utah, where he was serving as assistant project director when he relinquished his position to join the Department of the Interior.

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Shifts in two major western forestry positions result from the appointment of Stuart Moir as forestry counsel for the Western Forestry and Conservation Association and of Ernest L. Kolbe as chief forester for the Western Pine Association, succeeding Mr. Moir. Both appointments are effective July 1.

Mr. Moir, for the past eight years head of the pine association's forestry department and for twenty-five years a prominent figure in forestry circles, will succeed E. T. F. Wohlenberg who recently resigned his Western Forestry post to become general manager of the Masonite Corporation's Ukiah, California, operation.

Mr. Kolbe, since 1944, has been southern Oregon-California district forest engineer for the Western Pine Association in Klamath Falls, Oregon, and Sacramento, California. Graduating from the University of Minnesota school of forestry in 1927, Mr. Kolbe earned his master's degree at the Cornell University forestry school the following year. He has been active in western forestry since 1928.

Following a study of Scandinavian forestry management and operations, Mr. Moir began his forestry career with the Laurentide Paper Company, Ltd., at Grand Mere, Quebec. He later became district forest engineer in California for the Western Pine Association and then associate regional conservator in the Southwest for the Soil Conservation Service. In 1940 to become chief forester for Western Pine in Portland.

Senator Arthur Capper, right, started the National Press Club Library off on the right track in its drive for 1,000 new volumes by presenting a copy of Gifford Pinchot's *Breaking New Ground* to Library Chairman Robert Tate Allan, of the Washington Post

In contrast to the sharp upward trend in the twenties and thirties when estimated big game numbers on national forest doubled at least once in every ten-year period, the increases last year in the case of deer and elk, principal big game animals on the forests, were but slightly more than two percent for deer and one and three-quarters percent for elk. Many of the big game ranges on the national forests are now fully stocked —in some instances overstocked— and a leveling off in numbers is to be expected. Also, there has been a rise in the number of hunters using national forests from 1,040,000 in 1941, to 1,520,000 last year.

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The radio communication committee of the Pacific Logging Congress has completed organization of National Forest Industries Communications to represent the forest products industry in the industrial use of radio. The Federal Communications Commission has assigned wave lengths for this use under experimental Class 2 licenses.

National Forest Industries Communications will be composed of three divisions: Pacific Logging Congress Division comprising the western states; Southern Division comprising the South Atlantic and Gulf States; and Eastern Pulp and Paper and Lumber Division comprising the Atlantic seaboard, Appalachian and Lake States. It is sponsored by the Forest Industries Council.

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Experimental flights in Idaho under the jurisdiction of the Department of the Interior have shown that the broadcasting of seed pellets by airplane is a potential though not a guaranteed successful method of replenishing vegetation on millions of acres of depleted range land in the West.

Preliminary reports on the reseeding operations on 20,000 acres of burned-over land in the Thorn Creek area north of Gooding, indicate that more speed in coverage, better seed protection and greater seeding results might be obtained through further improvements in pelletizing equipment and materials used in the tests.

Admitting that the aerial planting of pelletized seeds still is in the trial and error stage, Marion Clawson, director of the Bureau of Land Management, explained that the Idaho experiments included combining of seeds of crested wheat grass and clover, native clay and phosphate fertilizer into pellets of three-eighth and

one-quarter inches in size, and the discharge of these pellets from planes flying at altitudes ranging from 300 to 500 feet.

• • •

George A. Garratt, dean of the Yale School of Forestry, has been elected president of the Forest Products Research Society. Mr. Garratt was a member of a group of research personnel and educators who organized the Society in February, 1947, and served as its first vice-president. During the war Dean Garratt served as chief of the Division of Technical Service Training of the U. S. Forest Products Laboratory, Madison, Wisconsin, where he was responsible for the organization of a training program for 15,000 military and civilian personnel engaged in wood aircraft fabrication, inspection of wood used for shipbuilding and the packaging of supplies. He also served with the Army Transportation Corps in the European Theater of Operations.

• • •

The drastic waterfowl hunting regulations of 1947 which were designed to bring about a very substantial reduction in the kill of ducks and geese succeeded in their purpose, according to Albert M. Day, Fish and Wildlife Service director. Hunter take data for 1947, which service officials feel are the most accurate to date, reveal that:

The average seasonal kill amounted to a little more than seven birds. Each hunter went afield about four times.

The Pacific flyway had nineteen percent of the hunters and twenty-five percent of the kill, representing no change from the 1946 season. The Central flyway had twenty-five percent of the hunters and nineteen percent of the kill. In 1946 this flyway had the same percentage of hunters but the kill amounted to twenty-nine percent.

The Mississippi flyway had forty-four percent of the hunters and forty-six percent of the kill, a reduction of two percent in the hunters, but an increase of nine percent in the kill as compared with the 1946 season.

The Atlantic flyway had eleven percent of the hunters and ten percent of the kill in 1947. In 1946 it had fourteen percent of the hunters and nine percent of the kill.

• • •

John B. Ferran, of New Orleans, has been chosen executive secretary for the Louisiana Forestry Association. Since 1942 director of pub-

(*Turn to page* 278)

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6-48

CONSERVATION IN CONGRESS

By A. G. HALL

Hearings have begun on the Hope bill (H.R. 6054) to provide for a national agricultural land and water conservation program. While it is not believed that this or other land policy bills will be enacted in this session of the Congress, both the House Committee on Agriculture and the Senate Committee on Agriculture and Forestry (which approved the Aiken bill—S. 2318 on May 13) are amassing facts and opinion looking toward the development of a long-range agricultural program. A further study likely to influence the ultimate legislation affecting land-use policies is that being made by the Commission on Organization of the Executive Branch of the Government. Under the leadership of Herbert Hoover, special committees of the Commission are studying the agricultural and natural resources activities of the government.

Hearings have been held by the House Committee on Agriculture on the House bills to increase the authorization of funds for cooperative fire control work, under the Clarke-McNary Act, from $9,000,000 annually to a new limit of $20,000,000. If enacted, the bill will provide for annual increases of $2,000,000 until the new limit is reached. The bills, H.R. 5727, H.R. 5733 and H.R. 5827, introduced by Representatives Sikes of Florida, Pickett of Texas, and Allen of Louisiana, received vigorous support at the hearings. Chief stumbling block likely to be encountered in this legislative move is the interpretation of the Flood Control Act which authorizes fund control funds to be used for fire protection on watershed areas without the necessity of the states' matching federal contributions.

H.R. 3578 to reduce in area the Parker River National Wildlife Refuge in Essex County, Massachusetts, passed the House on April 20 and was reported favorably by the Senate Committee on Interstate Commerce on May 13. This bill offers a compromise for the controversy which has been going on since the refuge was first established.

Following passage of the Ball-Thye bill, S. 1090, to consolidate and preserve the canoe country within the Superior National Forest, a conference between the sponsors and members of the local communities affected and Representative Blatnik of Minnesota, resulted in a new Blatnik bill, H.R. 6240. The bill embodies the amendments which the Senate Committee on Agriculture and Forestry had injected into the Ball-Thye bill, and provides for an annual payment to the state of Minnesota of one percent of the fair appraised value of the national forest lands, as determined by the Secretary of Agriculture at ten-year intervals.

The Lea bill, H.R. 107, to authorize the Fish and Wildlife Service to acquire more than 20,000 acres of land in California for waterfowl management, with a view to controlling damage to rice fields, which passed the House on July 7 of last year was reported favorably from the Senate Committee on Interstate and Foreign Commerce on April 30 (Senate Report No. 1217).

The Wherry-Burke bill, H.R. 4018, to transfer surplus lands acquired for war purposes to the states for wildlife management and to the Fish and Wildlife Service for waterfowl management, which passed the House on July 21, 1947, was also reported favorably from the Senate Committee on Interstate and Foreign Commerce on April 30 (Senate Report No. 1220).

Representative Russell of Nevada has introduced H.R. 6320 to appropriate the unobligated balance of around $13,500,000 in the Pittman-Robertson Federal Aid-to-Wildlife Fund for state game restoration projects. This sum has accrued from the excise tax on firearms, shells and cartridges. Since July 1, 1938 to June 30, 1946 the fund grew to $27,867,468 of which $14,000,000 has been appropriated. The Russell bill would appropriate one-fifth of the balance annually for a five year period in addition to regular annual appropriations for wildlife restoration.

Senator Cordon's bill, S. 582 authorizing annual payments in lieu of taxes on national forest lands, was reported with amendments by the Senate Committee on Interior and Insular Affairs on May 11. The bill, as amended, provides for an annual payment of .75 percent of the fair appraised value of the lands. In addition, the federal government would pay 37.5 percent of the revenue from mineral deposits in national forests.

The access road bill, S. 2487, introduced by Senator Brewster of Maine, on April 12 would authorize $50,000,000 for the construction of roads to military and naval reservations, defense industries, industry sites and sources of raw material when such roads are needed for the national defense. Similar bills, H.R. 6395 and H.R. 6400, have been introduced in the House by Representatives Fellows of Maine, and Hagen of Minnesota. Another similar bill, for authorization of $100,000 for access roads, was introduced by Mrs. Smith of Maine (H.R. 6322), on April 22.

Bills to permit farmers to deduct from gross income for income tax purposes their expenditures incurred for soil and water conservation have been introduced by Representatives Curtis of Nebraska (H.R. 6312), Martin of Iowa (H.R. 6315), Simpson of Pennsylvania (H.R. 6321), Woodruff of Michigan (H.R. 6340) and Mason of Illinois (H.R. 6370). All have been referred to the House Ways and Means Committee.

Representative Knutson of Minnesota introduced H.J. Resolution 358 on April 26 to provide for reforestation and revegetation of forest and range lands of the national forests and other lands under the administration of the U. S. Forest Service. To acquire lands for nurseries and to carry out the program, the bill provides for annual appropriations of $3,000,000 in 1950, $5,000,000 in 1951, $7,000,000 in 1952, $8,000,000 in 1953, and $10,000,000 annually from 1954 to 1964. For range revegetation the bill provides for $1,500,000 in 1950, $1,750,000 in 1951, $2,000,000 in 1952, $2,500,000 in 1953, and $3,000,000 annually from 1954 to 1964.

A study of problems relative to high-altitude meadows for the purpose of increasing forage production for livestock is provided for in S. 2566 introduced by Senator Johnson of Colorado, on April 28.

The federal interest in preserving of the South Calaveras Grove of Big Trees on about 2,500 acres in Tuolumne County, California, is indicated by Representative Johnson's (California), bill H.R. 6387, which would authorize a loan of $250,000 to California for the acquisition of the land involved. A similar bill by Representative Engle of California, H.R. 6389, was also introduced.

Siesta Mañana

(*From page* 260)

wood plant operators in this region, on the other hand, knew that war and postwar needs for their pine lumber and plywood would be great, so they tried to maintain production at as high a level as labor shortage would allow. They were right about the market for their product, but it soon became painfully evident that they could produce faster than available railroad cars could haul their products from their mills to Sao Paulo markets or Santos, Rio and other seaports.

Lumber began to pile up at railroad stations, along the right of ways, and around the mills. The situation was getting critical, especially for the small sawmill men who could not afford to store their lumber very long.

Besides the immediate problem of transportation, there was the long-range problem of getting young pine trees to grow back on the cutover pine land. This long-range problem was not unrelated to that of transportation. Obviously, as logging operations cut off the timber and moved west into virgin territory, more miles of railroad and highways would have to be constructed. What was to be done about getting more cars and locomotives, building more highways? And since this would obviously take time, how about the problem of adjusting lumber production to available transportation and, above all, what about getting new crops of pines on the old as well as new cutover timberland?

In former days, someone might have said the traditional, "*Deixa como esta para vir como fica*"—but times are changing. Instead, the government set up a National Pine Institute with a staff which includes a number of technicians and an advisory board made up in part of practical loggers and sawmill men. The NPI was given practically blanket authority to pressure railway and transportation agencies to increase their facilities, to set quotas of available car space for each producer, and to set a percentage reduction across the board for all sawmills. It has authority to reforest cutover land and, if it sees fit, to require whatever measures it feels necessary to make sure that unfenced hogs, and uncontrolled fires do not destroy the big seeds or the husky pine seedlings on the freshly cutover areas.

(*To be concluded in July issue*)

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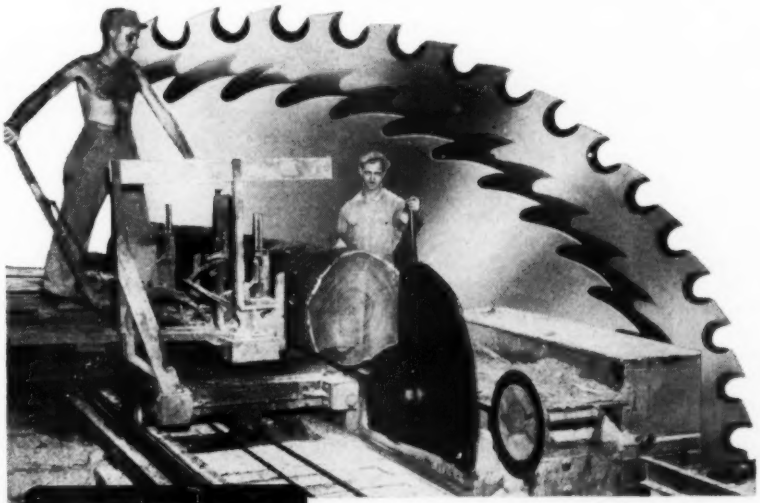

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"I hereby give, devise and bequeath _____ to The American Forestry Association, Washington, D. C., a non-profit District of Columbia corporation, or its successor, or successors, for the purpose of promoting the corporate activities of said Association."

FOREST VALUATION, by H. H. Chapman and W. H. Meyer. Published by McGraw-Hill Book Company, Inc., New York 18, New York. 521 pages, illus. Price $6.

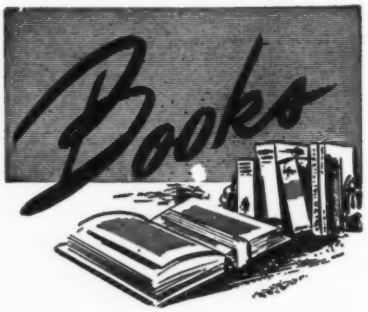
An addition to The American Forestry Series, this text is successor to "Forest Valuation," 1925, and "Forest Finance," 1935, and probably marks the final departure from the original European sources of forest evaluation and statics. The basis of all economic discussions contained in the text is that of a competitive economy founded on private initiative and free markets. The book is largely the work of the senior author, with a chapter on determination and application of conversion returns by Professor Meyer. Throughout the text the fundamental economic laws are treated in direct relation to forest economics and evaluation.

SOIL AND STEEL, by P. Alston Waring and Clinton S. Golden. Published by Harper and Brothers, 49 East 33rd Street, New York, N. Y. 233 pages. Price $3.00.

This book, written by a farmer and a worker, examines the whole problem of political and economic relations between workers in industry and workers on the farm. It shows what is behind the long-standing sense of conflict between the two groups and then develops a program for increasing cooperation between farm and city workers on common ends. Urging that both workers and farmers become better informed and more tolerant regarding each other, the authors remind their readers that "cleavage is the beginning of facism, and those who drive wedges between groups have not learned to live in a democracy."

HUNTING IN MAINE, by Henry Milliken. Published by L. L. Bean, Inc., Freeport, Maine. 186 pages, illus. Price, $2.00.

This book has caught the flavor of the Maine woods and is packed with hundreds of hunting facts. The author manages to take the reader on informative and entertaining trips afield to hunt white-tailed deer, black bear, raccoon, red fox, ruffed grouse, pheasant, woodcock, snowshoe rabbits and bobcats without bragging about his ability—an exploit worthy of note in the fraternity of which he is a member. This is a book of boys, men, dogs and guns and contains valuable information for any sportsman who contemplates a hunting excursion to the Maine woods.



FISH & GAME COOK BOOK, by Harry T. Botsford. Published by Cornell Maritime Press, New York City. 290 pages. Price $3.

A connoisseur of good food reveals some of the secrets of preparing it. Believing that if fish and game are cooked with "proper reverence and understanding" they are the basis of our most delectable dishes, the author hopes this book will educate the inexperienced. Definitely a book to be perused *after* eating if you don't want to find yourself, shotgun and fishing tackle in hand, dashing off to a forest.

YOUR WESTERN NATIONAL PARKS, by Dorr G. Yeager. Published by Dodd, Mead & Company, New York City. 275 pages, illus. Price $3.50.

Here are details of forty western national parks and information on the others. A book to read even with no thought of visiting the areas and very important for the traveler. The author has been with the National Park Service for twenty years, so knows his subject thoroughly.

LEISURE TIME EDUCATION, by Anna May Jones. Published by Harper and Brothers, New York City. 235 pages, illus. Price $2.75.

This is a help to teachers and group leaders in guiding boys and girls in the best selection and enjoyment of their leisure time pursuits. Suggestions and tried methods are presented, with emphasis on the less formalized extra-curricular activities.

SAWMILLING PRACTICES THAT PAY, by R. R. Cahal. Published by Southern Pine Inspection Bureau, New Orleans, Louisiana. 107 pages. Price 50 cents.

A booklet to increase the effectiveness of the methods followed in converting a tree into a salable product. Time tested methods are advanced and it also includes a number of new ideas that should be adaptable for use at any mill.

The publications listed below must be ordered direct from the addresses as given and not through the Association.

Postwar Problems of the Cross Tie Industry in the Lake States, by Arthur G. Horn and Harold F. Scholz. Sta. Paper No. 2, Lake States For. Exp. Sta., Univ. Farm, St. Paul 1, Minnesota.

Estimating Cull in Northern Hardwoods, by W. M. Zillgitt and S. R. Gevorkiantz. Sta. Paper No. 3, Lake States For. Exp. Sta., Univ. Farm, St. Paul 1, Minnesota.

The Reforestation Job in the Lake States—A New Estimate, by Paul O. Rudolf. Sta. Paper No. 4, Lake States For. Exp. Sta., Univ. Farm, St. Paul 1, Minnesota.

Sample Plot Methods, by W. M. Robertson and G. A. Mulloy. Dept. of Mines and Resources, Ottawa, Canada. Price 25 cents.

Pine Pulpwood Production, a study of hand and power methods, by Robert A. Campbell. Southeastern For. Exp. Sta. Technical Note No. 66. Asheville, North Carolina.

Machine and Hand Direct Seeding of Pine and Cedar in the Piedmont, by Leon S. Minckler and Albert A. Downs. Southeastern For. Exp. Sta. Technical Note No. 67. Asheville, N. C.

Christmas-Tree Farming, by J. A. Cope. Cornell Extension Bull. 704, Nov. 1946. Pub. by N. Y. State College of Agric., Ithaca, N. Y.

1945 Pulpwood Production by County in the Carolinas and Virginia, by James F. McCormack. For. Surv. Rel. No. 21. Southeastern Forest Exp. Sta., Asheville, N. C.

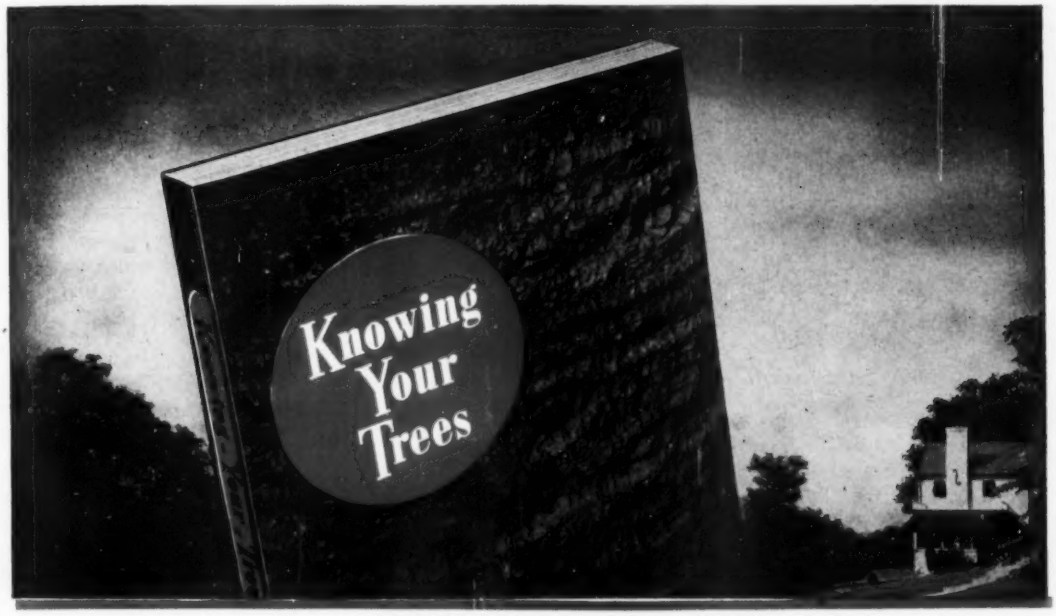
Timber-Products Marketing in Eastern Kentucky, by Duerr, Roberts and Gustafson. Bull. 488. Kentucky Agricultural Exp. Sta., Univ. of Kentucky, Lexington.

Regeneration and Growth of White Spruce After Logging, by H. M. Pogue, Dept. of Lands and Forests, Victoria, British Columbia.

The Mahogany Book, by George N. Lamb. Published by the Mahogany Association, Inc., 75 East Wacker Drive, Chicago 1, Illinois.

Care and Diseases of Trout, by H. S. Davis. Fish and Wildlife Service Research Report No. 12. Supt of Docs, Wash. 25, D. C. Price 25 cents.

A Standard City Ordinance Regulating the Removal, Planting and Maintenance of Shade Trees in Public Areas, formulated and published by the National Shade Tree Conference, Ohio State University, Columbus 10, Ohio.



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The party will leave Ely, Minnesota, on the morning of August 9, motoring over Echo Trail to Moose River canoe route to meet their guides. From there the trip will be by canoe, following the border lakes for four days. Then a swing up into Canada's Quetico Provincial Park for two days in wild, rugged country of white water, green-clothed islands, and a myriad of lakes. Back to the border country again, the party will paddle on through Bayley Bay to Prairie Portage, through a series of beautiful little lakes to come out of the wilderness on the tenth day, August 18, within motoring distance of Ely.

Approximate cost of the expedition will be $159 from Ely. This cost covers guide service, complete outfitting, including food, tents, blankets, airmattresses, canoes, etc. A medical officer will accompany the party.

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News in Review

(*From page* 272)

licity and public relations for the Board of Commissioners of the Port of New Orleans, Mr. Ferran also had served with the New Orleans *Item*, *Times-Picayune* and *States*.

The Louisiana Forestry Association was formed in Alexandria last September, the outgrowth of the desire of progressive forest landowners, timber operators, wood-using industries and professional foresters for an agency to assist in the formation and execution of a statewide forestry policy.

• • •

The acute shortage of timber throughout the world, caused largely by the devastation and dislocation of war, offers an exceptional opportunity for development of the great forest resources of Latin America. Such development would strengthen the economics of all Latin American countries, and would aid in the reconstruction of postwar Europe.

This was the keynote of the Latin American Forestry and Forest Products Conference which opened April 19 at Terosopolis, Brazil, attended by leading forestry officials from nineteen countries representing three continents. The Latin American group comprised fifteen countries whose agriculture has not yet been highly developed, but which have large reserves of wealth in their forest areas. The second group consisted of the industrialized nations from which machinery and equipment for exploitation of these forest areas would have to come. European nations formed the third group, which has an urgent need for timber and forest products, and is consequently interested in prices, deliveries and conditions in the timber trade. Fourth group was the European and North American forestry experts who had previous firsthand experience of forest conditions in Latin American countries, and thus were able to help these countries define their problems.

• • •

The spring offensive in the 1948 battle between New York State and the gypsy moth opened April 15 near Albany. An area of about 50,000 acres of infested forest lands were sprayed with DDT from aircraft during April and early May. An additional 15,000 acres were sprayed with ground equipment. The gypsy moth control cooperative program using DDT distributed from aircraft has now been under way in New York State for two seasons. Substantial progress has

been made each year in the fight to eradicate the pest.

• • •

Meetings You Should Attend

June 8, 9, 10—First Eastern Seaboard Logging and Equipment Show, University of Maryland, College Park, Maryland

June 21, 22, 23—Annual School for Conservation of Natural Resources, Garden Clubs and Federated Women's Clubs of South Carolina, Table Rock State Park, South Carolina

June 21 to July 8—Northern Annual Ohio Conservation Laboratory, Camp Muskingum, Leesville Lake, Ohio

June 26, 27, 28—Eleventh Appalachian Trail Conference, Fontana Dam, North Carolina. (Program and announcements available through The American Forestry Association.)

September 7 to 20—Inter-American Conference on Conservation of Renewable Natural Resources. Denver, Colorado

September 19—Fiftieth Anniversary of the Black Hills National Forest, Nemo, South Dakota.

September 23 and 24—Soil Conservation Demonstration. Rio Grande College, Ohio

September 26 to October 1—National Recreation Congress, National Recreation Association, Hotel Fontenelle, Omaha, Nebraska.

Wings Over the Wilderness

(*From page* 254)

proposed for the entire Rainy Lake watershed which would not only safeguard and perpetuate the natural resources of the area but would recognize its unique wilderness qualities. So logical and sound was this Quetico-Superior program that when the International Joint Commission denied the Backus application it memorialized both Canada and the United States that nothing should ever be allowed to interfere with its achievement.

In the meantime, thousands of canoeists from every state of the union were exploring the canoe routes, following the trails made famous by the voyageurs in the early days. The country was coming into its own.

In 1926 the U. S. Forest Service now fully aware of the great public interest in the preservation of these waterways along the Minnesota-Ontario border, created its first "Wilderness Area." This decision was acclaimed widely and everyone was happy. In 1930 the Shipstead-Nolan bill was passed which gave the shorelines within most of the Superior forest protection from flooding and indiscriminate logging. In 1933, the state of Minnesota followed suit and applied the same regulations to state lands within the area. By 1939 the roadless areas, as the wilderness areas were called locally, had been enlarged by the inclusion of the Little Indian Sioux and Caribou into the wilderness system. Over a million acres was set aside for the enjoyment of primitive travel. During this period the Superior National Forest had grown by acquisition from less than a million acres to almost four million, had become one of the largest national forests in the United States. It began to look as though the famous canoe country was safe from exploitation until the end of time.

Bush pilots, however, had been flying the lake country ever since the early twenties. Such travel at first was sporadic, much of it devoted to taking in outlaw trappers, prospectors and occasional fishermen willing to risk their lives in the antiquated crates those first flyers used. The planes were not a threat in those early days, were really considered as part of the wilderness picture. But in the thirties new type planes came in and fishermen began to use them extensively. People who owned land within the roadless areas discovered it was a swift, convenient way of reaching their properties. They also discovered the growing demand for airplane resorts back in the hinterlands. Even so, there was little exploitation until the early years of the war.

In 1942 construction began on a resort located on a parcel of private land at Curtain Falls, the outlet of Crooked Lake. A year later, another began on Friday Bay of the same lake. The year 1945 marked the development of an elaborate place on Lady Boot Bay of Lac La Croix in the heart of the no-cutting strip which the Forest Service had proclaimed to save the last big stand of virgin pine along the border. New developments followed swiftly on Lake Saganaga, Kakequabic, Seagull and other hitherto untouched waters.

To those who believed that the roadless area boundaries gave protection to the wilderness these developments were a shock. Until the war

(*Turn to page* 282)

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U.S. Chamber of Commerce Maps Plans to Enlist Members in Action Program to Promote Good Forest Management

The Chamber of Commerce of the United States will take a more active part in promoting good forest management in 1948. Key objectives for the expanded natural resources committee agreed on at the annual meeting in April included the urgency for an action program designed to "wise up" chamber members regarding the importance of "going beyond their own city limits" in promoting sustained-yield forestry, according to D. J. Guy, manager of the chamber's natural resources department.

The decision to give forestry new impetus in thousands of American communities will be only one of the projects to be developed by the chamber's Natural Resources Committee. Actually, this group of resource experts will be asked to take what amounts to a "new look" at the whole conservation picture in America with special emphasis on forestry, water and mineral resources. For the chamber, at its annual meeting, was struck as never before by the vital importance of preventing America from becoming a "have not" nation. Probable ERP requirements is another factor in chamber thinking at the moment. That's why the organization plans to bolster its natural resources department with facts that will serve as guides for needed conservation action.

A start was made in shaping a revised forestry policy last year by the national chamber. This year the thirty-four member Natural Resources Committee will be boosted to forty members, with old members invited to serve another term. This representative group will be asked to draft a constructive forestry policy to serve as a worksheet and guide to chamber members throughout the nation. In substance, it will probably be patterned after the program of The American Forestry Association.

"Members of the Chamber of Commerce have considerable influence in their various towns and cities," Mr. Guy commented. "Once equipped with manageable knowledge regarding forestry methods, they can furnish substantial aid—working with state and district foresters, and other organizations. But before they can supply impetus in furthering forestry management, they must be equipped with understandable worksheets and sold on why they should go beyond their own city limits to promote forestry methods. That's why we need a practical policy."

Mr. Guy said the chamber regards the sustained yield of forest products as essential for the continued prosperity of the wood-using industries and dependent communities.

Three committee members who have already expressed their willingness to serve on the chamber's Natural Resources Committee are S. T. Dana, dean, School of Forestry and Conservation, University of Michigan, Ann Arbor, and a director of The American Forestry Association; O. T. Swan, Oshkosh, Wisconsin, secretary-manager, Northern Hemlock & Hardwood Manufacturers Association; and Nelson C. Brown, New York State College of Forestry, Syracuse University, New York. Other key men who served last year and have been invited to serve again this term include W. S. Rosecrans, Los Angeles, California, president of The American Forestry Association and recently elected a vice-president of the national Chamber of Commerce; James J. Storrow, Boston, Massachusetts, a director of The American Forestry Association; H. M. Seaman, Houston, Texas, vice-president and general manager, Kirby Lumber Corporation; H. J. Plunkett, New Rochelle, New York, secretary, Plunkett-Webster Lumber Company; and Floyd Hart, Medford, Oregon, president, Timber Products Company.

Another development at the chamber's annual meeting was the approval of an amended policy declaration affecting grazing rights on the public lands. The 1946 grazing clause urged that private ownership be reestablished as the ultimate objective in government land policy. The 1948 grazing clause approved by the organization states: "Consistent with the protection of the public interest and sound conservation practices, grazing permits upon federal lands should afford such security of tenure as will serve to stabilize the use of such lands by the livestock industry and should give due consideration to the permittee's previous use of such lands."

While the overall policy declaration affecting public lands points out that fifty-four percent of the combined areas in eleven western states is owned by the government and that the tendency toward "large-scale extension of federal land ownership should be checked," it was regarded as significant that the policy as it affects grazing lands eliminated the clause urging reestablishment of private ownership.

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Wings Over the Wilderness

(*From page 279*)

the country was comparatively safe, but that day was over and a new threat greater than any preceding it was spelling the doom of the treasured waterways. For the first time since the establishment of the roadless areas, the 120 thousand acres of privately owned land were accessible and valuable. Lake shore properties which until then had been worth only a few dollars an acre suddenly zoomed in price. There was a mad scramble for the choicest locations and owners found themselves caught in a tourist bonanza that promised riches if they were able to develop their sites. The term "Roadless Area" became a mockery.

Here was a situation the Forest Service was unprepared to meet, a problem absolutely without precedent in the history of official administration. The two resorts on Crooked Lake and the one on Lady Boot Bay were typical. Completely surrounded by federal lands, they were actually private preserves seemingly created by the government for their own personal exploitation. Guaranteed immunity from competition by federal decree, the owners blessed the foresight of the Forest Service, lauded the roadless area plan that had given them such profitable sanctuary.

Aware of the plight of the Forest Service in trying to acquire private lands far beyond its means, the Izaak Walton League established by private subscription an endowment fund of $100,000 to buy up the most strategic properties. In all, fourteen sites were acquired, some of them operating resorts, some in process of construction, a number waiting for materials and the completion of plans. But even this was not enough and the swift process of attrition continued.

By 1947 air traffic had increased tremendously and the little town of Ely, ranger headquarters of the Superior National Forest, became the largest fresh water seaplane base in America. In addition to the twenty-five local planes which were operating with the regularity of suburban locals, there was a growing stream of traffic from the outside. Chicago, Duluth, Minneapolis, Cleveland and St. Louis advertised weekend fishing excursions into the hinterlands of the once wilderness areas of the Superior. One plane boasted a non-stop flight from Florida to Crooked Lake.

Canoe parties that until now had paddled the beautiful routes of the Superior, began to head north into still untouched wilds of the Quetico. The Insula-Alice route, Knife and Ottertrack, Thomas and Frazer, the Kiwishi, became almost deserted, knew only the sound of planes landing and taking off. While there was still travel on the American side of the border, it was swiftly losing its old appeal. Modern voyageurs to whom a canoe trip was more than just fishing learned that wings had thrown a shadow over the wilderness, a shadow that meant the end of solitude and adventure.

They knew, too, that this was merely a prelude to the future, that the number of planes now in use would be increased by hundreds. Then portages would disappear through lack of use, and the sight of canoes slipping along the waterways would be a thing of the past. A time might come when ramps and gasoline dumps would replace logs and shelving rocks at the old landings and the calling of the loons would be drowned by the roar of takeoffs.

In view of what was happening, it stood to reason that the solution was not alone the acquisition of private lands within the roadless areas of the Superior National Forest. Desirable as this would be, it would mean little unless something was done to meet the immediate challenge of air travel. All the expense for acquisition, all proclamations and decrees would avail nothing unless through them might come the necessary control of planes. Without that the end was in sight and we could bid farewell to the days of packs and paddles. Voyageurs of the future would know the wild country only through the writings of those old enough to remember.

What was the answer? The only possible answer if the canoe country was to be preserved, was immediate regulation of all flying. By the establishment of an air space reservation over the area, planes could be forced to land on peripheral strips or waters outside the roadless area boundaries. While official or emergency flights would be permitted, all private or commercial aircraft would be banned. There would be no halfway policy or compromise. Only in this way would the wilderness lake country be given absolute protection.

While the solution of the Superior problem was urgent, I realized that even in our own West and in the great undeveloped hinterlands of Canada, a similar situation was developing.

Even in the vast uncharted country of the Hudson's Bay watershed, some regulation would soon be necessary for no body of water would ever again know the protection of distance or inaccessibility. Zoning must be accomplished there, too, or in time even those seemingly endless expanses of wild country would go the way of the closer regions to the south. Fishermen and hunters were reaching out as never before. It was now as easy to spend a week on the shores of Hudson's Bay or God's Lake, as it was a few short years ago to travel from Chicago to the northwoods of Wisconsin or Minnesota.

Wings were casting the shadow of doom over all of the primitive regions of the continent, a shadow that might mean the end of all wilderness experience in America. But the heaviest shadow of all was over the canoe country of the Quetico-Superior, ancient highway of the voyageurs.

* * * *

As though to echo my thoughts, a loon called long and mournfully out on the open lake. Bill stirred restlessly in his sleeping bag, sat up suddenly and rubbed his eyes.

"Daylight?" he asked, "let's get going. There's a little lake about a day's travel from here. Trout in there, too."

"Still dark," I said, "better go back to sleep."

He groaned, burrowed down deeply into his bag. In the morning we'd start traveling again, find some place where the shadow of wings was still unknown.

Troubled Waters in the Everglades

(*From page 263*)

will have come to Florida for other reasons."

Mr. McDougal, who waited out the results of the Barrett committee's executive session on the Smathers measure, believes there is a better than fifty-fifty chance that oil will be produced in the glades in commercial quantities. The major oil companies, he said, are ready to invest more millions in Everglades development, if they get the chance.

On the other side of the picture John D. Pennekamp, Miami newspaperman and a member of the Everglades National Park Commission, commented in 1946, "Our commission sees two courses growing out of the oil situation. The first is that oil will not be brought in at all in worthwhile commercial quantities, and the truth of this will be demonstrated before the eight-and-a-half years have expired during which we must turn the fee simple titles to this property from the Fish and Wildlife Service over to the National Park Service.

"Secondly, unless the Florida field comes in beyond even the dreams of the speculators we believe that we can demonstrate that our park will be more valuable to our state and nation than will oil. For this reason: In 1941, the last normal year of tourist travel, twenty-one million visitors went to our national parks. Now, if Florida got only its fair proportion of that number, the fundamental economic value—the dollar and cents return—of that much additional travel to the state will be far greater than will be the value of oil produced if it is brought in in less than extraordinary gusher proportions, of which there is no present indication.

"Let's assume that there are oil deposits out there, but not in extraordinary gusher quantities; that we eventually will find a more nearly normal field, which would be considerably more than is presently indicated. Would it not be better for the government to own it as a reserve (which is what a national park would accomplish) to be tapped only in time of great emergency, such as a war?"

What is the history of oil development in the Everglades and why does it remain a paramount issue today?

When Ernest F. Coe first launched his plan to convert the Everglades into a national park and received the

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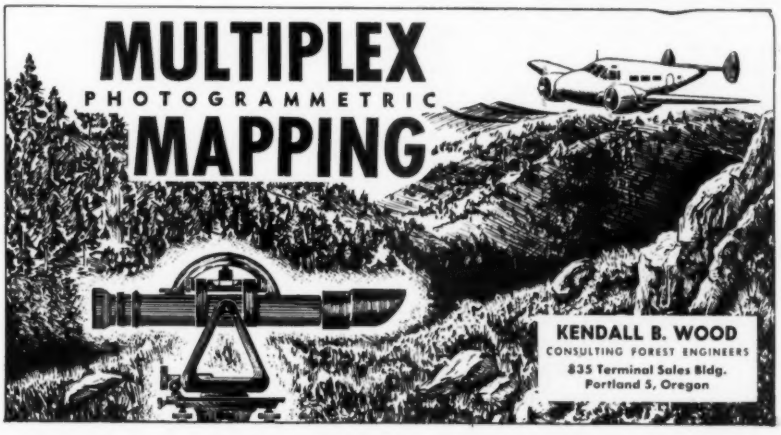

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support of other conservation leaders no such opposition to the plan was anticipated. To be sure, commercial fishermen had to be reassured that their legitimate interests would not be interfered with although it was stated that Florida's good, but infrequently enforced, fishing laws in south Florida would be adhered to once the area became a national park. Hunters voiced objections to the proposal, mainly gun clubs operating in the immediate vicinity of the proposed park area, but here again it was explained that the proper maintenance of bird and animal refuges should be all the more reassuring for honest sportsmen as contrasted to sorties of wanton killers who swarmed into the glades from time to time in "glades buggies."

There were other objections, none of them insurmountable, including the matter of a fair price for privately owned lands that would be included in the proposed tract. Then in 1943, unfortunately for the prospects of the park, the Standard Oil Company announced that the Humble well at Sunniland, twenty-six miles north of Everglades, had brought in "salt water with a bona fide showing of very dark oil" from a depth of 11,626 feet. Pumps were installed and an original production of 100 barrels a day was secured. At the conclusion of a sixty-day test, production had dropped to thirty-five or forty barrels a day, leveling off and continuing at that figure.

With this announcement park progress stopped abruptly with the exception of Mr. Coe's group which continued to dispense publicity regarding the great need for the park—a group that remained a clear small voice throughout the subsequent excitement and confusion.

Despite conservative reports of the discovery at Sunniland, much of Florida was soon blanketed with exploratory contracts and oil leases, negotiated by large and small operators. In January 1944, the Humble Company started another well, a mile west of its first. Other wells followed —and new roads were built. Equipment worth millions of dollars was installed. The pressure of the activities brought recollections of the Florida land boom of 1925 with newspapers constantly describing the trading of contracts and leases, and speculating in vivid prose regarding anticipated gushers.

Actually, the forty-barrel well at Sunniland seems to have been the only visible foundation upon which this activity was based. Some geologists admitted that geophysical surveys revealed no conclusive or accurate information because of the great depth of soft limestone encountered.

While the importance of the Florida oil boomlet gradually receded in the minds of most Floridians when time and effort failed to bring in hoped-for gushers, some property owners continue to see visions of great pools of oil in mysterious subterranean channels and give every indication they will fight to the bitter end to preserve what they regard as their rights. They gave every indication of this last July when they testified at hearings on the Smathers bill before the public lands subcommittee.

Citing the fact that the glades area is only thirty miles south of Florida's only producing oil field, Ivar Axelson, declared the park is the "hot spot" of oil explorations in Florida with about 1,200,000 acres in the park vicinity under lease to major oil companies "who have shown their belief in the great possibility of oil production by spending from five to six million dollars in exploring the area."

In summing up his testimony Axelson posed the questions: Should the park be permitted to interfere with oil explorations and the development of south Florida? What measures would be best to insure that it does not so interfere? Is such a vast area necessary for the park? What is the actual value of the land in the park area and is the $2,000,000 donated by the state of Florida sufficient to pay for the condemnation of the land? Is it not advisable to hold up HR 3378 until the law suits filed by the attorney general are settled?

Stating that he was not opposed to the park, Axelson said he was of the belief that some plan could be worked out whereby "we can have both park and reservation of oil and mineral rights for landowners."

What, at this stage of the game, is the probability of oil being discovered in productive quantities in southern Florida? At the moment, it is a matter of imponderables. Results to date have not been highly satisfactory. Professional opinion has not always agreed. But the existence of an oil-producing well a few scant miles from park boundaries is a potent factor in the thinking of some Everglades property owners. It could happen on their land too, they think.

The immediate task in southern Florida is to save the Everglades. Poachers who kill game indiscriminately, fishermen who dynamite fish, despoilers who yearly carry away

thousands of orchids—all constitute a threat to the area. But the greatest threat of all is the gradual disintegration of this unique region due to unnatural drainage and fires. Most of this disintegration, scientists aver, can be attributed to man's clumsy attempts at development—including attempts at agriculture and attempts to develop the area's alleged resources. In its endorsement of the proposed park in 1932, the committee of the National Parks Association headed by Frederick Law Olmsted and William P. Wharton urged there be no reasonably avoidable delay in establishing the park.

Park officials, including Superintendent Dan Beard, Jr., hope to check the deteriorating influences in the new park but there is an indication considerable education must be carried on before they receive the full support required to do a satisfactory job. This education should consist of basic truths regarding the importance of saving America's only tropical wilderness. It has little to do with tourists or oil or any other secondary considerations.

Maine

(*From page 268*)

ports of hundreds of infested or infected trees. Thus the foresters keep tabs on the health of Maine's vast woodland.

In the southern states, for various reasons, pine stands are giving way to hardwoods. This trend is noticeable in southern Maine, at least with reference to areas where white and Norway pine abound. The conifers are less numerous than they were a half century ago. But in the northwoods, by virtue of birch borers and aphids in the beech, the veteran hardwoods are dying rapidly, and conifers are coming in over large areas. Thus in one region, at least, the process of species succession reverses itself.

The organization of fire protection has been developed through the years. Thirty men look after detection and general supervision of suppression efforts in the organized towns. In addition to state lookout towers and county wardens paid from legislative appropriations, the state undertakes to defray one-half the cost of suppressing fires in these settled areas, the other half being borne by the towns.

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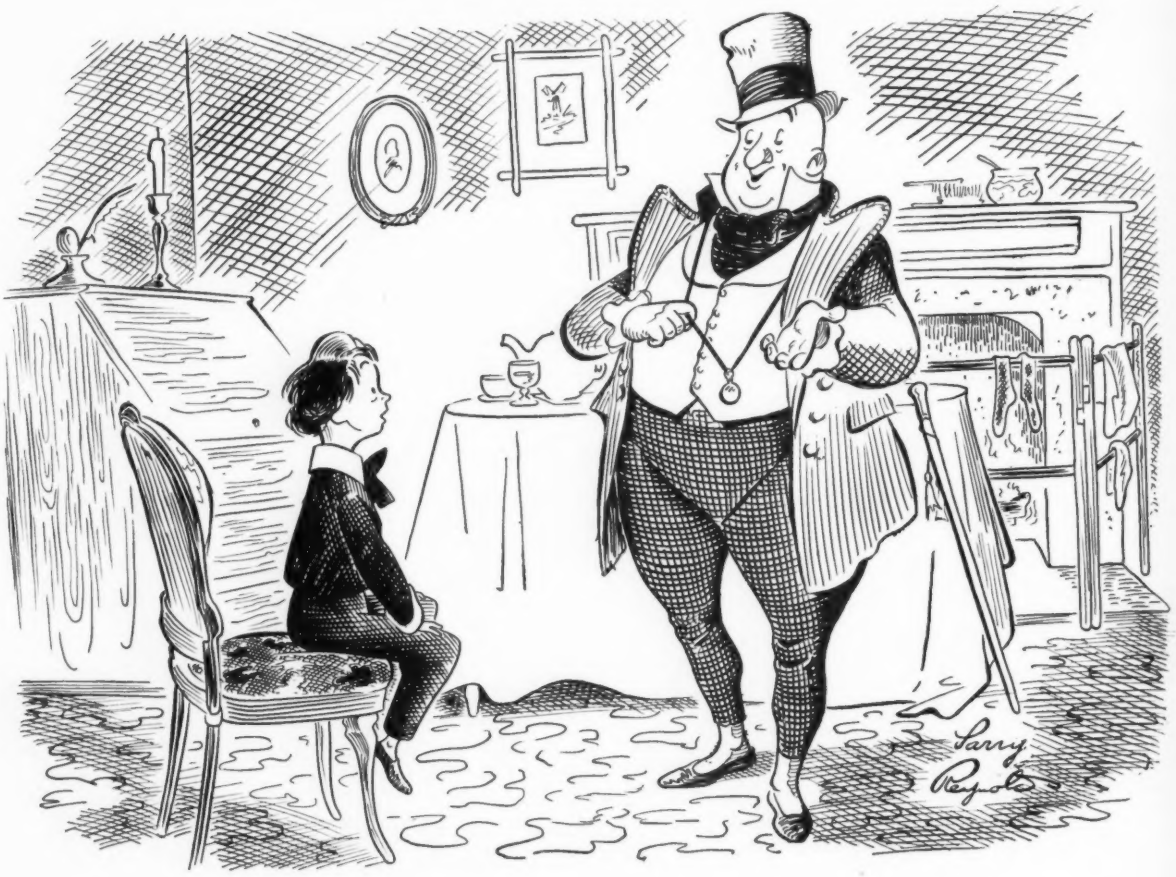

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headquarters are integral parts of a system which functions effectively with expenditures of about $400,000 yearly.

Maine state forestry has been chiefly occupied with forest protection. Only one technical forester works as extension man in the field of small owner education, and he is under direction of the state university. In view of the extent and number of small forest holdings, it would seem that a very great increase in facilities for owner instruction would pay large dividends in faster growth and higher quality of wood produced.

There still are many white pines in Maine; each year thousands of logs are cut and hauled to mill, and these logs are of good size. Wherever one travels there are sawmills, pulpmills, specialty works and even cedar shingle mills. Wood is growing on all sides, but the observant forester cannot help wondering why, with such markets and variety of species, Maine is not demonstrating forest management on a higher plane of technical excellence, on a far greater percentage of the timber tracts.

A City Guards Its Water

(*From page* 251)

The logging agreement between the city and the several private timber owners has now been in effect for two years, and will run for another thirty-eight years. The long-time nature of this agreement gives the logging operations a permanence and stability which is of advantage both to the city and to the logging operators. The agreement applies universally over all parts of the watershed whether the operator is cutting his own timber, other privately owned timber, city-owned timber, or national forest stumpage. Sales of city timber can only be made with the approval of the City Council. On sales of national forest timber, U. S. Forest Service timber sale procedure is followed and the operator also works under their timber sale contract, with which the city agreement is in harmony.

The annual cut, covering all ownerships, is limited to thirty-five million board feet a year, based on a three-year average. We have not yet attained 35 million board feet. In 1947, from 352 acres, the cut was twenty-three million board feet of sawlogs. Provision is made for revision, either upward or downward as conditions may wararnt, at ten-year intervals. This annual cut is divided between the logging operators, as agreed upon from time to time, and approved by the city.

The forty-year term of the contract, coupled with the cutting limit of thirty-five million feet a year, have in effect placed the logging operations on the Cedar River watershed upon a sustained annual yield basis. For, in looking forty years into the future, when the cutting of virgin timber will be nearing completion, there will be stands of second growth forest, which the city is now growing, which will be maturing and ready for harvesting. In fact, it is likely that a cut in excess of forty million feet of sawtimber can be supported thereafter.

The agreement provides, further, that the method of timber cutting is to be in accord with the best of forestry practices, and three guiding principles are laid down for use in determining the method. Consideration shall be given first to protection of the area for watershed purposes, second to protection of seeding and regrowth of the timber stand, and third to utilization and economic handling of the timber.

So far, the method of harvesting has been almost entirely clear-cutting, with the cut areas taking the form of strips or blocks, interspersed with blocks of standing timber. Where needed, reserve seed areas are being left. On two recent Forest Service sales, some tree selection cutting has been done, but the area so treated is limited and results are not yet convincing. The size of the clear-cut areas is determined by the distance from a seed source, since natural seeding can be expected to reforest much of these clear-cut areas. Past experience indicates that distances of

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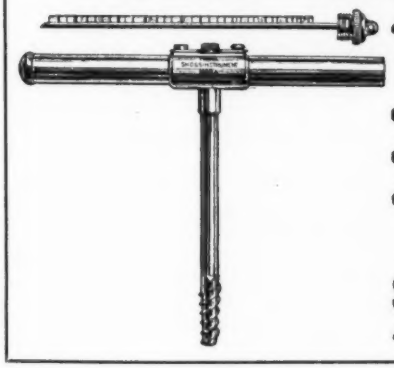
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a half mile or even more, in the direction of the seed dispersal winds, is not too great. The burning of logging slash following the logging is not expected to be a problem in the future, for with the program of re-logging now getting under way there will not be enough slash left on the ground to warrant burning.

Two logging operators are now cutting in the watershed. The entire cut of one is confined to the watershed area, while the other is cutting the major portion of its output elsewhere. Logs are hauled by motor truck from the cutting operations to reloading sites at Cedar Falls and Selleck for shipment by rail to tidewater. This truck haul varies in distance up to twenty miles at the present time. City-owned roads are used wherever possible for the transportation of logs, and for this use the operators pay the city a charge of sixty cents a thousand for sawlogs and twenty cents a cord for pulpwood. The revenue thus received by the city, $11,262.43 in 1947, very materially offsets the expenditures now being made for fire protection and reforestation on the watershed. The operators maintain, and improve where necessary, the city roads which they use.

Logging methods vary between high lead yarding and ground yarding with tractors and logging arches, depending upon the character of both the timber and the topography. Because of the heavy snows at the higher elevations, the logging operations from now on will be seasonal, with an expected winter shutdown of about four months. Logging camps are being operated at the reloading sites, with the logging crews transported to and from the woods by crew trucks. All operations within the watershed are conducted subject to strict fire and sanitary regulations administered by the city.

Throughout these years, in addition to the water resource, which is the primary purpose of the watershed, controlled use of the power resource and timber resource has also been developed. Seattle feels that this is wise management, for, just as the watershed produces a continuous supply of water, so can it also produce a continuous crop of timber which on being harvested enters into the economy of the community, providing employment for many citizens, and raw materials for the sawmill, plywood, and pulp and paper industries of the region.

Aspen's Place in the Sun

(*From page* 265)

maining trees results, more abundant forage is secured for stock and higher values for watershed protection are made manifest, all of which means earlier returns and a shorter rotation. This is a strong point in favor of intensive aspen management which appears practical *now*—not in the indefinite future.

Secondly, while conifers rely on the relatively slow though desirable phenomenon of seed production and favorable conditions for the germination and growth of seedlings, aspen reproduces by suckers and sprouts the very next year after the forest above ground is removed, be it by fire or harvest. This fact is a substantial asset. No time is lost in establishment of the next crop and the new stems grow evenly, all starting, as they do, at the same time. One cardinal rule must be observed under such a procedure. No stock can be permitted on a newly cut area until the terminal buds of the leaders are out of reach of the browsing animals.

The U. S. Forest Service, through the Intermountain Forest and Range Experiment Station, recognizes the potentialities of Utah aspen in the light of present day standards and contemplates strengthening by new studies the information now available for applied forest management of the species.

As progressive research uncovers more uses for native woods, our most important renewable heritage, aspen, sometimes called the "shrinking violet" of the forest, can be expected to be removed from the list of secondary species and to win a rightful place in the society of wood.

AUTHORS

JAMES D. CURTIS (*Aspen's Place in the Sun*) is silviculturist with the Intermountain Forest and Range Experiment Station, Ogden, Utah. SIG OLSON (*Wings Over the Wilderness*), well known writer, is dean of Ely Junior College, Ely, Minnesota. ALLEN THOMPSON (*A City Guards Its Water*) is forester for the Seattle, Washington, water department. JOHN B. WOODS (*Forests of Maine*) was director of the Forest Resource Appraisal of The American Forestry Association.

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The Purpose

The American Forestry Association is a national organization—educational in character—for the advancement of the intelligent management and use of the country's forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is (1) to bring about adequate protection and perpetuation of these resources by creating an enlightened public appreciation of the need of conserving them through wise use for the present and future welfare and enjoyment of all the people; (2) to make available to Americans in all walks of life a wider knowledge and appreciation of their forest resources and the part they can play in the social and industrial life of our nation.

The History MORE THAN half a century ago American men and women of vision, stirred by the rapid destruction of forests and forest life in the United States, began to raise their voices in behalf of conservation. Foreseeing the danger of allowing America's rich forests and vast natural wealth to be thoughtlessly wasted, these public-spirited individuals protested the needless destruction that was taking place. Out of their efforts came a collective force—The American Forestry Association, first organized in 1875 and made a national influence in 1882.

The Record THUS The American Forestry Association has a long record of efficient public service. The establishment of the United States Forest Service and the creation of the nationwide system of state and national forests and parks were due in no small part to the Association's efforts. Its educational work, extending over more than seventy years, has stimulated public action and built public support for protection against forest fires and floods; for prevention and control of soil erosion; for the development of conservation policies in forest management for continuous production through wise use; for the control of forest insects and diseases and the preservation of fish and wildlife.

The Support FROM AN ORGANIZATION of a few hundred members a half century ago, the Association has attained a substantial membership of many thousand men and women, living in every state of the Union and in foreign countries throughout the world. The funds of the Association are administered by a Board of Directors composed of individuals of national standing—men and women who give their services free, who have a practical understanding of the nation's present-day conservation needs, and are equipped through experience, ability, enthusiasm and training to advance the Association's program.

The Program BECAUSE OF its independent, non-political character, the work of The American Forestry Association is vitally necessary in the field of public service. It provides an unprejudiced influence for the development of sound conservation measures. It helps coordinate public, state and federal policies. It cooperates closely with federal, state and private agencies in conservation work. At the same time it initiates, sponsors and carries on needed projects in conservation in addition to its regular broad continuous program of education.

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